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It's Important to 'Know In Time'

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The Newspaper of the Industry

Air Conditioning & REFRIGERATION NEWS

Production Tools for Victory — AN INTERNATIONAL INSTITUTION — SUBSCRIBERS ALL OVER THE WORLD — Technical Governmental

Reentered as second-class matter October 3, 1936 at the post office at Detroit, Michigan, under the Act of March 3, 1879. Trade Mark Registered U. S. Patent Office. Copyright, 1943, by Business News Publishing Co.

'Written To Be Read on Arrival'

Issued Every Monday at Detroit, Michigan

AUG. 16, 1943

Vol. 39, No. 16, Serial No. 752
Established 1926.

Inside Dope

By George F. Taubeneck

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Five-Star Whiteside

It is rapidly becoming apparent that Donald Nelson has picked another winner in Arthur Whiteside, WPB Vice Chairman in charge of the Office of Civilian Requirements.

He is being compared with Charley Wilson, actual operating head of the WPB, and to Bill Jeffers, the Rubber Administrator. Apparently he combines many of the admirable qualities of both. Some have called him a "gentleman Jeffers." He cuts through red tape and gets a job done with all the single-mindedness of the jaw-busting Jeffries without creating antagonisms and enmities.

Nelson, of course, has faced an enormous task in persuading men of Whiteside's calibre to leave their immensely important civilian jobs and enter government service. When one such does, there should be some means for the nation to show its gratitude.

Civilians don't rate stars on the shoulders, as do generals, but if such ratings were possible Mr. Whiteside would rate at least five stars.

Hershey Telegram

Recent case in point was General Hershey's unprecedented telegram to state Selective Service headquarters concerning the deferment of refrigeration service men.

The National Refrigeration Wartime Council had been just about everywhere, seen just about everyone — including National Selective Service officers—about the serious shortage of service men.

Everybody seemed to agree that only an Act of Congress could remedy the situation. Finally the Council was ushered into Mr. Whiteside's office by Henry Dinegar.

Mr. Whiteside listened to the problem, grasped its seriousness at once, and said: "Let's do something." In vain did various individuals explain why nothing could be done.

"I don't care what the procedure is or isn't," he is reported to have said, impatiently, "I'll call General Hershey and get him to take action."

He did, and Hershey did.

As simple as that.

Civilian Goods

Mr. Whiteside probably has as broad a picture of American business as any man in the country. He is fully aware of the problems besetting the retailers and wholesales of the nation, and has recently expropriated from other WPB jurisdictions the various retail and wholesale divisions.

He also knows that the home front is heading for serious trouble through shortages of necessary supplies. How can these needs be reconciled with military demands for almost everything?

Well, that's about as large an order as has ever been placed on one man's desk. But he is probing for the facts, studying minutely some 100,000 items of civilian supply with a view to rescuing and resuscitating any useful item from short supply if it can be done without hampering our coming military and naval campaigns.

He has several fundamental premises, we are told. One is that areas of

(Concluded on Page 13, Column 1)

Flashes From the 'Freon' Front

'Freon' Capacity To Be Doubled By Feb. 1944

WASHINGTON, D. C.—Plant additions authorized July 29 by the War Production Board for Kinetic Chemicals, Inc. at Carney's Point, New Jersey will add a basic capacity of 1,000,000 pounds monthly to the nation's Freon production when completed Feb. 1, 1944.

Until recently the capacity of Kinetic's Freon plant was 1,250,000 pounds monthly. This output will now be stepped up by addition of auxiliary equipment in the production lines to 1,800,000 pounds monthly. Thus the total production by Feb. 1 next year, when the new production line comes into operation, should be 2,800,000 pounds monthly.

Present Freon shortage was aggravated by the fact that failures on the part of many dealers to return cylinders last Spring—despite urgent pleas—prevented the Freon plant from operating at capacity during the winter of 1942 and 1943. Thus considerable production was lost.

Then came the Aerosol program. This insecticide was developed last year by Dr. Lyle D. Goodhue of the United States Department of Agriculture, and others. It consists of pyrethrins, sesame oil, and Freon-12 as the propellant.

Westinghouse is the principle producer of Aerosol. They have developed a light "throw-away" package holding a pound of the mixture. To use, one simply pulls a trigger, and the Freon shoots out the insecticide to every nook and cranny. One pound of Aerosol is said to take care of 150,000 cubic feet of space.

Following experiments by Lt. Col. Paul F. Russell and Dr. Knipe of the Surgeon General's Office, the latter decided Aerosol was superior to the oil-spray insecticides which they had been using, and recommended a gradual change-over to Aerosol for armed forces use.

For awhile they were stymied by a scarcity of pyrethrins, but this problem was solved by the Dodge & Olcott Co. of New York. Hence de-

(Concluded on Page 4, Column 3)

DAYTON — Warning to service men against substituting methyl chloride for Freon in sealed units has been issued by Charles R. Neeson, chief engineer of Chrysler's Airtemp Div. Do not make such a substitution, he suggests, without consulting the manufacturer of the unit.

Reason for his warning is that most sealed unit electric motors produced in recent years have contained aluminum which, in the presence of both methyl chloride and moisture, suffers severe corrosion and renders the unit entirely useless.

He also points out that extreme care must be taken in refrigerant conversion lest high head pressures build up and explosions follow.

Replacement Unit Control Transferred

WASHINGTON, D. C.—Price control over replacement units and assemblies for mechanical refrigerators of domestic type—those with a refrigerated space of 16 cubic feet or less—has been transferred from the General Maximum Price Regulation to the over-all machinery price regulation by the OPA.

The provisions of the machinery price regulation can be applied more readily by OPA and the industry in meeting its pricing problems, OPA

(Concluded on Page 4, Column 4)

L-38 Interpretation Covers Priority Angle On Changing Gases

WASHINGTON, D. C.—Interpretation No. 1 to Limitation Order L-38 issued Aug. 10 is significant chiefly because it rules upon the applicability of Order L-38 to the change in the type of refrigerant in a system.

In substance, the interpretation says that paragraph (b) (1) "Restrictions on Deliveries" in L-38 does not prevent the substitution of one type of refrigerant for another if the change does not involve the delivery of any parts. However, if the change involves the installation of an expansion valve or other "part" it may be made only in accordance with paragraph (b) (1) of Order L-38.

The other part of the interpretation is concerned with a further definition of an "authorized order,"

(Concluded on Page 4, Column 5)

Change In M-28 Adds To Bans on 'Freon' Use

WASHINGTON, D. C.—Conservation Order M-28 (the "Freon" order) as amended Aug. 7 further restricts the use of the refrigerant and requires more classification data from those who order it for essential uses.

Classes III and IV have been broken down so as to give a more detailed breakdown of requirements.

The order further specifies that there is no allocation for subclassifications (b) and (c) of Class IV. Sub-classification (b) is "for maintenance of industrial refrigeration and air conditioning systems used for processing of products other than food" and (c) is "for maintenance of all other refrigeration and air conditioning systems not included under (a) or (b) above, and not in List A or List B. This class includes sealed railroad cars."

Persons requiring refrigerant in these classes are to communicate with Washington and give the following information: name, address, quantity, type of system (air conditioning or refrigeration) whether there is a breakdown, size of system in tons of capacity or horsepower, the functional use of the system, and the product produced by the process which depends on the system for its continued functioning. They are also to advise whether or not they have attempted to substitute another refrigerant for "Freon-12."

Following are the changes in the text of Order M-28: Under "(b) Classification of uses of chlorinated hydrocarbon refrigerants."

"Class III: (a) Maritime Commission or War Shipping Administration, for charging new refrigeration or air conditioning systems at factories of equipment manufacturers.

"(b) Maritime Commission or War Shipping Administration, for charging new refrigeration or air conditioning systems in the field.

"(c) Maritime Commission or War Shipping Administration, for maintenance and repair of systems already installed.

"Class IV: (a) For maintenance of industrial, wholesale, retail, and household refrigeration system used for the processing, storage, and dispensing of food and food products; but excluding systems referred to on List A or List B.

"(b) For maintenance of industrial refrigeration and air conditioning systems used for processing of products other than food.

"(c) For maintenance of all other

(Concluded on Page 4, Column 4)

CHILD DEAD, 49 ILL FROM TAINTED PIES

EUGENE, Ore.—The death of a two-year-old boy, the critical poisoning of five adults and the temporary illness of 44 more in the town of Eugene last week were caused by cream pies tainted because of inadequate refrigeration, according to the official report of Dr. C. L. Lindgren, Lane County health officer.

Autopsy of the body of the child and examination of the contents of the stomachs of those stricken, Dr. Lindgren disclosed, identified cultures found in the pies, sent into Eugene from a bakery in another city.

OCR Plugs For Adequate Parts And Repairmen

WASHINGTON, D. C.—A nine-point program designed "to keep civilian economy at a healthy and efficient level to insure adequate war output" was embodied in a report on requests for materials which the Office of Civilian Requirements is making to the WPB Requirement Committee.

"We must insure that all minimum essential requirements are met and in addition that all national resources above that level, which cannot be employed effectively to meet our military and foreign policy needs are utilized to supply civilians," the OCR stated in explaining one of its principles. "We do not advocate forcing the civilian population down to bare subsistence levels in the present military situation."

One of the main points made was that "adequate repair parts, replacement of parts and labor must be made available to maintain existing essential equipment in the hands of civilians in operating condition."

Arthur D. Whiteside, in charge of the OCR, said he believed that by a wise use of about the same quantities of materials which have been devoted to civilian goods in recent months, essential civilian services

(Concluded on Page 24, Column 1)

Dealer's Loan To Chicago Hospital Averts Tragedy

CHICAGO—A government agency that revealed itself to be completely ignorant of the dangers of improper food preservation endangered the lives of scores of babies here recently by bureaucratic dawdling over an emergency request on priority assistance for new refrigeration equipment.

The Refrigeration Section of WPB was in no way involved in the matter, since it did not pass upon the application. The bureau that handled (or mis-handled) the problem was the Government Division, which passes upon applications for assistance from states, municipalities, and institutions.

This is what happened:

Confronted with the most crowded schedule of maternity cases in years, a leading Chicago suburban hospital found that the refrigerator it was using to preserve mothers' milk could not handle the increased requirement. Also, since the present box had seen hard service for some years, there was the danger that it would give out at any moment.

After scouring the Chicago market for a suitable box, new or used, the hospital's purchasing official finally located a new reach-in refrigerator, representing the last of a local dealer's stock of pre-war equipment.

(Concluded on Page 4, Column 2)

CRMA Receives WPB Approval Of Plan on Cases

Program Set to Convert Some Meat Cases to Vegetable Displayers

CHICAGO—Approval by WPB of a proposal to convert a quantity of refrigerated meat display case equipment into vegetable display equipment was reported by the Vegetable Refrigeration Committee at the annual meeting July 30 here of the Commercial Refrigerator Manufacturers Assn.

The committee was active in sponsoring this proposal before the WPB. The same committee was also in a large measure responsible for the recent decision of WPB to permit manufacturers to produce as many vegetable cases as they had material for (as reported in the Aug. 2 issue of the NEWS). Members of the committee include: J. H. Coolidge of Sherer-Gillett Co.; William J. Stelpflug of Hussmann-Ligonier; and E. L. Stultz of Viking Refrigerators.

At the annual meeting the following men were elected to the executive committee: C. V. Hill, Jr., C. V. Hill & Co.; J. H. Coolidge, Sherer-Gillett Co.; A. J. Johnson, Puffer-Hubbard Mfg. Co.; Edward N. Northey, Herrick Refrigerator Co.; Ernest L. Stultz, Viking Refrigerators, Inc. The executive committee then elected as officers for the coming year, C. V. Hill, Jr., president; J. H. Coolidge, vice president; and A. J. Johnson, treasurer.

There was also an extended discussion of postwar problems, with plans made to conduct research with the object of strengthening the industry's position after the war.

L-38 Amendment Will Relax Restrictions On Water Coolers

WASHINGTON, D. C.—Liberalization of the conditions under which mechanical drinking water coolers (not designed for use aboard ship) can be delivered is contained in Amendment 2 to Limitation Order L-38, issued Aug. 10.

Where delivery had formerly been restricted to Army or Navy only, they now can be made also "when specifically authorized on Form WPB-2448 formerly PD-831) only, and only for a hospital or a new or enlarged industrial plant or replacement in an industrial plant of an existing cooler which is beyond repair, if considered indispensable by the WPB."

Text of the amendment is as follows:

Section 1071.1 **General Limitation Order L-38,** as amended May 20, 1943, is hereby amended in the following particulars:

1. On "List B," "Part I," in item 1 the words "Army or Navy," are changed to read "Army or Navy; or when specifically authorized on Form WPB-2448 (formerly PD-831) only, and only for a hospital or a new or enlarged industrial plant (except in offices and eating places) or replacement in an industrial plant of an existing cooler which is beyond repair, if considered indispensable by the War Production Board."

2. On "List E," in item 1, the words "Army, Navy, Maritime Commission, or War Shipping Administration," are changed to read: "Army, Navy, Maritime Commission, or War Shipping Administration, for use aboard ship."

Birdseye Tells Food Technologists Why Quick-Frozen Foods Will Advance After War

ST. LOUIS, Ohio—Accommodation for the sale of frozen foods will be a part of every grocery store after the war, predicted Clarence Birdseye of Gloucester, Mass., leader in the development of modern quick-freezing methods, at a recent meeting here of the Institute of Food Technologists.

Although at present only one out of 11 stores is equipped to sell frozen foods, he said, the percentage will jump to the one hundred mark soon after the war and then all groceries, instead of displaying bins of fresh vegetables will have low-temperature cabinets of the self-serve type where housewives, even in remote districts, will find a wide variety of cooked and fresh frozen vegetables and other foods.

Birdseye stated that very few unprocessed fresh vegetables will be sold. Whereas now there are only 60 frosted food items on the market, there will be several hundred when the industry reaches its peak. At that time all household refrigerators will have frosted food compartments.

Looking forward to lowered trade barriers and world-wide refrigeration facilities, Birdseye says there will be no international boundaries to perishable food distribution.

"Huge mechanically operated farms and processing plants," he continued, "will center around such virgin areas as Grand Coulee Dam and produce unbelievable tonnages at very low costs, thus seriously affecting less efficient farming. Low-temperature locker plants will multiply in urban and rural communities."

Savings in both tin plate and transportation space by use of the quick-freezing process were stressed by Birdseye. He said, "Operating only 40 weeks annually, one freezer weighing five tons can freeze in paper cartons 375,000,000 pounds of peas which would require over 4,500,000 cans comprising eight tons of pure tin and 500 tons of steel. One freight car of frosted spinach contains as many edible portions as 11 cars of fresh spinach. If this saving could have been applied to all fresh vegetables moved by rail in 1942, there would have been a saving of 138,200 carloads."

Universal Cooler Nets $142,711 In 9 Mos.

MARION, Ohio—Universal Cooler Corp. reports for nine months ending June 30 a net profit, after $545,000 provision for Federal taxes, of $142,711, or 22 cents a share on Class B stock. For the quarter period ending June 30 the net profit was $38,677 or 4 cents a share on Class B stock.

Profits for similar periods in 1942, and before Federal taxes, were reported by Universal at $141,024 for the nine months and $113,302 for the quarter ending June 30, 1942.

'Reasons Why' Card For Items Not Shipped Saves Needless Correspondence

THE HARRY ALTER CO. • 1728 South Michigan Avenue • CHICAGO 16, ILLINOIS

RE: Attached Invoice No.

We regret to advise that we could not ship everything that you ordered. The attached invoice shows those items that were shipped to you. Below we show those items you ordered which we did not ship because of the reason indicated. We assure you we are trying to give you the best service possible on your valued orders.

THE FOLLOWING ITEMS NOT SHIPPED BECAUSE —	REASON

A. A preference rating of .....is required. If you can give us such a rating, we then could fill your order in about..... days.

B. Item "back-ordered" for shipment as soon as possible.

C. Our stock on this item is temporarily out, but we expect more in about .....days. We consider it only fair to suggest that you obtain this elsewhere if possible, otherwise please reorder from us.

D. Item sold out and no more available as listed in our catalog "subject to prior sale." Sorry!

E. Item discontinued for the duration as we are unable to secure any more. If possible select substitute. Sorry!

F. Item not listed in our catalog and not carried in stock. Sorry!

G. Item reduced in quantity because our sales are restricted to emergency orders only.

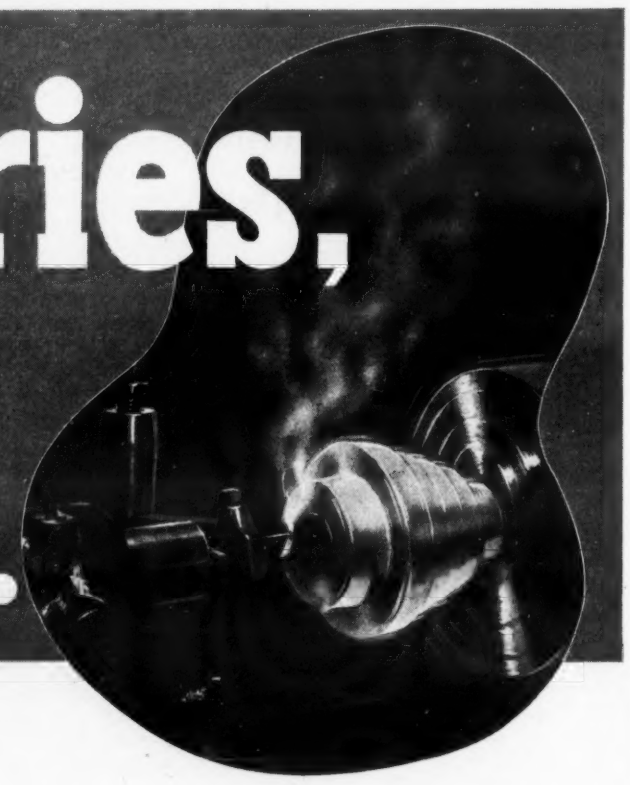
H. We require more information on this item like name plate, specification, frame No., etc., or sketch, or sample.

J. See attached explanation of L-38 Paragraph.....

K. Our stock on this item is exhausted. We suggest you reorder this substitute:
No. .....
Page .....
☐ Catalog No. 138
☐ Suppl. No. 138.....
which we have in stock today.

With some business firms finding that it takes almost as much time and trouble to explain why an order can't be filled as fill one, the above form worked out and used by The Harry Alter Co., refrigeration supply jobbing concern, offers a simple-to-use but effective answer to the explanation problem. It is especially handy in cases where part of the order can be filled, and part can't. The reasons "A" through "K" on the right hand side of the form supply the "reason why" for the line "The following items not shipped because—"

Industries, Men and Nations...



depend on

REFRIGERATION

accurately controlled

When American Industry put on its full head of steam and swung into 24-hour-a-day, seven-days-a-week War Production, machines became too hot to handle or too hot to work efficiently . . . . Machines actually had to shut down for cooling off. But Yankee ingenuity found an answer. REFRIGERATION was added . . . . And that's one reason why America is out-producing every other nation in the world.

Designing and building precision Control Equipment for Refrigeration's new Wartime duties is one of A-P's most gratifying tasks. Today the A-P Research Staff is looking farther ahead, into post-war markets, working with many manufacturers readying revolutionary new products that will carry tomorrow's progress in Refrigeration to new achievements. Perhaps we can help you with YOUR plans.

AUTOMATIC PRODUCTS COMPANY
2450 NORTH THIRTY-SECOND STREET
MILWAUKEE 10 WISCONSIN
Export Dept. 100 Varick St., New York City

AP DEPENDABLE Refrigerant Valves

STOCKED and SOLD by JOBBERS EVERYWHERE

Training School Nets New Help, New Outlets

BIRMINGHAM, Ala.—A series of two-day service schools for present and potential appliance servicemen, conducted recently under the sponsorship of the state's six leading appliance distributors, has resulted in the enlistment of new help and the establishment of several new outlets in towns throughout the state.

A prevailing scarcity of ice has increased demands for reconditioning every possible usable refrigerator, and dealers have encouraged the training of women and of older men to alleviate the shortage of help.

The school sessions were led by representatives of many different appliance manufacturers, and the troubles and problems discussed were those common to all makes. Interchangeability of parts between different makes especially was stressed as a frequent soluition for wartime emergency.

Four different factory representative discussed electric refrigerators. One explained refrigerants and their operating characteristics. Another detailed the essential parts of a system and the cycles of operation. A third outlined common complaints, their causes, testing methods, and remedies. A fourth discussed hermetically sealed units.

These general sessions were followed by specific discussions of troubles peculiar to individual makes of appliances, and by the answering of questions from the floor.

Those who contributed to the success of the school as instructors, demonstrators and the like were: Paul Graves, General Electric Co.; K. C. Harville, Matthews Electric Supply Co.; R. B. Lewis, Westinghouse; L. S. Hart, Moore & Handley; W. A. Richter, Nash-Kelvinator Sales Corp.; A. E. Wood, Crosley Corp.; Don Swift, Steel City Supply Co.; W. E. Stuart, Birmingham Electric Battery Co.; Dean Spencer, Borg-Warner (Norge); R. H. Shau, Hotpoint; Paul Brown, Anniston; Cal Mitchell, Bendix; E. M. Caller and J. R. Lester of Alabama Power Co. and J. L. Reynolds, Graybar Electric Co.

Midwest Uses Radio To Enlist New Employes

GALESBURG, Ill.—Midwest Mfg. Co. has inaugurated a half-hour weekly radio program to describe its part in war production and to enlist new employes from the Galesburg area.

Beamed from WGIL, Galesburg, "The Battle of Production" presents special entertainment from among Midwest employes, and news about the plant and its personnel.

C. R. Powers Joins Carrier Manufacturing Staff

SYRACUSE, N. Y.—C. Robert Powers has joined the manufacturing division of Carrier Corp. in the capacity of production control manager, announces John H. Holton, vice president.

Mr. Powers will have full responsibility for the preparation and control of all manufacturing schedules, delivery promises and flow of material.

The new Carrier executive has had wide and varied experience in the field of production management. Educated abroad, where his father was European managing director of the United Shoe Machinery Corp., Mr. Powers served with that company as an industrial engineer both in this country and in Europe.

Later he joined the Browne and Sharpe Mfg. Co., Providence. Recently he has worked with WPB.

We "BORROWED"
THE STEEL FROM THE FAMOUS
MIDWEST
Reach-In CABINET Line
TO MAKE
PARACHUTE FLARES
AND OTHER
Vital ARMY-NAVY NEEDS
No more REACH-INS for the duration. But engineering, design, and research departments are hard at work!
Proudly this pennant flies over our big Galesburg plant.
MIDWEST MFG. COMPANY

The Machine For Your Next Job...
If it's a refrigeration job ...no matter how big or how small...we can supply Lipman equipment to fit the specifications. Let us work with you.
GENERAL REFRIGERATION DIVISION
Yates-American Machine Co.
Dept. AC-3, Beloit, Wis.
Model 153 Water-cooled Machine
Lipman

Another Example of Kelvinator's RETAIL-MINDED ACTION

New "Wartime Idea Exchange" Project Announced for Home Economists!

$1,000 In War Bonds Is Monthly Award For Best Nutrition Ideas

Government Specialists to Act as Advisers and Judges

Dr. M. L. Wilson

A $25.00 War Savings Bond will be awarded each month by Kelvinator to each of the originators of the forty best ideas submitted in Kelvinator's new "Wartime Idea Exchange" Project.

Because this new Kelvinator program represents such an important and fundamental contribution to the war effort, and particularly in view of the home-front problems facing housewives today, important government food and nutrition experts who are working on these same problems have been happy to lend their aid and counsel. As a result, Kelvinator has selected a Board of Judges to choose the forty most helpful ideas each month—and to act as a Board of Advisers, as well, in setting up the monthly projects which will be of greatest current interest to the women of America. The nationally-known specialists who form Kelvinator's Board of Judges are:

Dr. Louise Stanley

G.E. Farrell

DR. M. L. WILSON, Nutrition and Food Conservation Chief, Nutrition and Food Conservation Branch of the Food Distribution Administration, Washington, D. C.

Gertrude Warren

DR. LOUISE STANLEY, Special Assistant to the Administrator, Agricultural Research Administration, Washington, D. C.

GEORGE E. FARRELL, Principal Agricultural Specialist, United States Department of Agriculture, Washington, D. C.

Mrs. P. L. Crowlie

MISS GERTRUDE WARREN, Senior 4-H Group Organizer, Specialist in Extension Service, United States Department of Agriculture, Washington, D. C.

MRS. PHILIP L. CROWLIE, Typical American Housewife, Office of Price Administration, Washington, D. C.

Kelvinator Is Building Now For Post-War Business

The tremendous amount of consumer good will that accrues to Kelvinator and Kelvinator merchants through the new "Wartime Idea Exchange" Project will pay sound dividends when Kelvinator again has merchandise to sell. Today housewives need all the help they can get with the new problems that arise in feeding their families and conserving household equipment. Home Economists are the finest source of practical new ideas for solving these problems. Kelvinator's contribution is bringing the two together. In performing a valuable service today to our government, to Home Economists and the nation's homemakers, this Kelvinator program will have the eventual result of building post-war electric range and refrigerator sales.

NATION'S HOUSEWIVES, KELVINATOR DEALERS TO BENEFIT

Through this Kelvinator program, the housewives of the nation will receive the full benefit of the alert minds of the Home Economics profession, as their training and professional skill are brought to bear on the wartime problems confronting homemakers daily.

The best ideas of the nation's Home Economists on such typical subjects as "Aids to Home Preservation of Fall Vegetables and Fruits," the first monthly project assigned, will be published in the monthly bulletin, "Helps for Homemakers." The timeliness of these ideas of the country's experts on home problems will make this an eagerly sought for item by housewives in every community. For Kelvinator retailers, the bulletin provides an ideal means of giving a vital wartime service to consumers, and building future good will.

SCRAP IS POWER

Cooperate With Your Industry! Salvage All Inoperative Parts Containing Critical Materials... Put Vitally-Needed Scrap Back Into the Scrap TODAY!

Dealers Will Distribute To Homemakers Best Ideas Of Leading Home Economists To Further Government Nutrition Program

Kelvinator, through its Kelvin Kitchen, announced to Home Economists in June the inauguration of a new program called the "Wartime Idea Exchange" Project. Designed as a clearing house and stimulant for outstanding new ideas on nutrition and conservation to further the government's national program, the plan calls for monthly projects of immediate interest to homemakers, and the awarding of $1,000 in War Savings Bonds for the forty best ideas originated by leading Home Economists on the subjects assigned.

MONTHLY BULLETINS FOR HOME ECONOMISTS AND HOMEMAKERS

"Kelvin-Gram" Features Home-Front News from Washington

The promotion plan is built around a monthly bulletin, the "Kelvin-Gram," which will be published as a four-page insert each month in one of the leading publications of the Home Economics profession, "What's New in Home Economics." In addition to announcing the new project of the month, the "Kelvin-Gram" will carry two pages of last-minute Washington news notes of the month's outstanding home-front food problems of especial interest to Home Economists, together with suggestions from the Kelvin Kitchen for meeting and presenting these problems to the nation's homemakers.

"Helps for Homemakers" Bulletin for Distribution by Retailers

The nub of the plan from the dealers' viewpoint is the publication of the outstanding ideas,received from each monthly "Wartime Idea Exchange" Project, in a pamphlet entitled "Helps for Homemakers." These will be available to retailers, Home Economists and utilities for use in their direct contacts with consumers. In addition, these ideas will be sent to 700 radio stations for use on their daily domestic science and women's programs.

Announced in the June issue of "What's New in Home Economics," the first project has already aroused great enthusiasm and every mail brings ideas for the Exchange Project and requests for additional copies of the "Kelvin-Gram."

LOOK AHEAD WITH KELVINATOR
DIVISION OF NASH-KELVINATOR CORPORATION
Kenosha · Milwaukee · DETROIT · Grand Rapids · Lansing

PURO ELECTRIC WATER COOLERS

Different models available for the various requirements of government agencies and war production plants.

PURO FILTER CORP.
440 Lafayette St., New York

DRINKING WATER SPECIALISTS FOR 40 YEARS.

REFRIGERATION TYPE ELECTRIC MOTORS

A Stock of D.C. Motors For Sale

WELL KNOWN MAKES SUCH AS
General Electric — Wagner
Delco — Century — Westinghouse

1/6, 1/3, 1/4, 1/2, 1/2, 3/4, 1 Horsepowers. 32, 115, 230 volts. 1750, 1800 R.P.M.

We advise you to take advantage of this offer while they last. Let us know of your electric motor repair problems. Wire or write.

P. J. QUINN'S SONS ELECTRIC MOTOR COMPANY
46-15 Vernon Blvd., L. I. City, 1, N. Y.

CORDLEY *Electric*
WATER COOLERS
ALL SIZES FOR SHIPBOARD AND LAND USE
MEET GOVT. SPECS.

CORDLEY & HAYES, NEW YORK, N. Y.

Bureaucratic Meddling Delays Refrigeration Needed by Hospital

(Concluded from Page 1, Column 4)

An order was signed, and the requisite PD-831 application forwarded to Washington, with the request that it be acted upon as quickly as possible in view of the threatened emergency, which was being further complicated by a siege of unusually warm weather.

The application was sent in during June. Days passed and lengthened into weeks, without any hint that Washington was interested in the matter. Finally, with the situation becoming more desperate daily, a communication dated July was received, in which the hospital was told:

"Before priority assistance can be rendered you, it will be necessary for you to advise this office what equipment has been used up to the present time, the capacity of the hospital and in what way it is impossible for you to use ice."

The possibly tragic situation was averted because within a few hours after this communication was received, the dealer delivered the desired box on a loan, pending action on a new PD application, and a hundred or so very young Americans are getting their daily rations on schedule.

Moral of the story seems to be that official Washington needs more and continued education on the vital importance of mechanical refrigeration, and that applications for priority assistance should be channeled to the Refrigeration Section.

More Production of 'Freon' Promised

(Concluded from Page 1, Column 2)

mands for Freon for use in Aerosol have stepped up from "X" pounds monthly to "3X" pounds monthly, a considerable jump.

The armed forces are also stepping up their program of new refrigeration equipment, which is dipping further into the Freon supply.

Under Order M-28 and its revisions the producer has no discretionary power over the shipment of Freon. Civilian users must convince Sterling Smith of the WPB, who administrates Order M-28, that they have an immediate use for it in the "necessary" classifications.

In order to keep the curtailed quantities of Freon available to civilians flowing to the field, the War Production Board will install a teletype system from Mr. Smith's office in Temporary "E" Bldg. to the offices of Kinetic Chemicals, Inc. in the Nemours Bldg. at Wilmington.

The War Production Board has sent the following telegram to manufacturers:

"The supply of Freon-12 most critical stop no Freon-12 is available for new equipment where use of other refrigerants is practical including that for Army and Navy exclusive of shipboard installations stop wire absolute minimum needs of Freon-12 for August for new equipment assuming maximum conversion to other refrigerants also advise quantity of other substitute refrigerants needed for August stop contact your customers immediately for authority to convert wire answer by Friday.

Text of Changes In M-28 Order

(Concluded from Page 1, Column 3)

refrigeration and air conditioning systems not included under (a) or (b) above, and not on List A or List B. This class includes sealed railroad cars."

The other change is as follows:

"(d) (3) Deliveries by suppliers after Aug. 7, 1943, for uses in (b) and (c) of Class IV. Chlorinated hydrocarbon refrigerants will not be allocated for the uses described in parts (b) and (c) of Class IV by regular monthly deliveries to suppliers. In the event a system operated for any of such uses becomes inoperative for lack of refrigerant, a separate application for refrigerants must be made by the owner of the system, directly to the WPB, General Industrial Equipment Division, by letter, telegram, or other communication, stating (i) whether the system is used for air conditioning or refrigeration, (ii) its size or capacity by horsepower or tons of refrigeration, (iii) the minimum operating charge necessary to restore the system to operation, (iv) why conversion to another type of refrigerant is not practicable, (v) the functional use of the system in the plant, and (vi) the end product being processed by its use.

"If the application is granted, the Board will issue a specific direction to the producer authorizing and directing delivery of a specified quantity to be made to the owner of the particular system for the use specified. No user, supplier, or other person shall deliver any chlorinated hydrocarbon refrigerant to the owner of such a system unless and until the Board has specifically directed such delivery to be made. This paragraph (d) (3) shall be followed, as long as it remains in effect, notwithstanding any other provisions of this order. However, suppliers will continue to place their orders for refrigerants, for uses described in Class IV in parts (a), (b) and (c) (listing (a), (b) and (c) separately), in accordance with paragraph (d).

Machinery Price Reg. Governs Replacements

(Concluded from Page 1, Column 2)

stated. The items are placed in Appendix B of Regulation 136 (Machines and Parts and Services), which provides a formula method of computing prices reflecting prices in effect on March 31, 1942, and hence no general change in the current level of prices will result.

The action was contained in Amendment No. 97 to Regulation 136 which became effective Aug. 5, 1943. Only manufacturers and wholesalers sales are covered by today's action. Retail sales remain subject to the General Maximum Price Regulation.

L-38 Interpretation Deals With Changing Refrigerant in Units

(Concluded from Page 1, Column 3)

declaring that "An 'authorized order' includes (in addition to an order authorized on Form PD-830 or PD-831) any order accepted prior to April 6, 1943, and rated A-1-c or higher if the system or parts are produced and delivered in accordance with the provisions of Orders M-9-c and M-126 which were applicable immediately prior to that date.

Text of Interpretation I to Order L-38 is as follows:

Part 1071—Industrial and Commercial Refrigerating and Air Conditioning Machinery and Equipment.

(Interpretation 1 to General Limitation Order L-38).

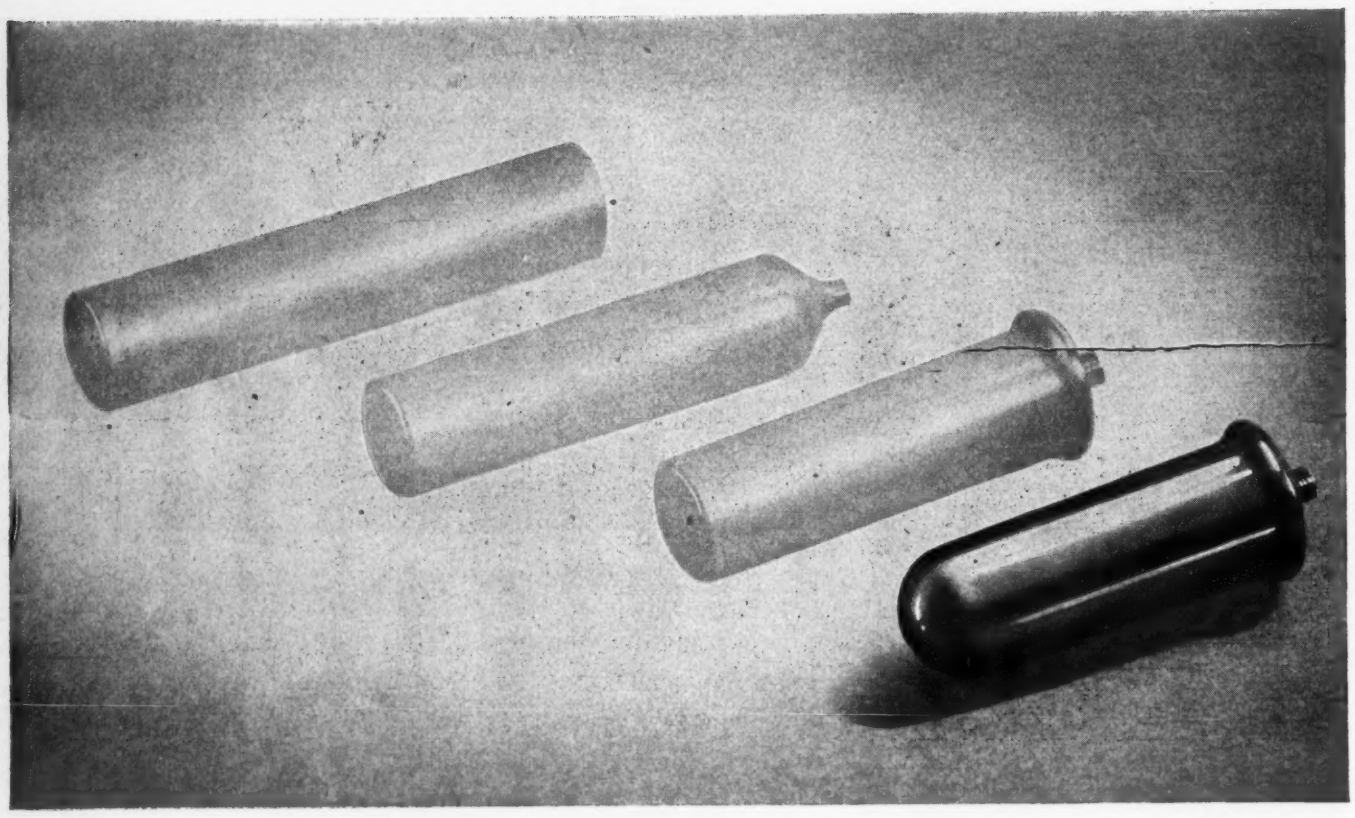
a. **Orders accepted prior to April 6, 1943.** An "authorized order" includes (in addition to an order authorized on Form PD-830 or PD-831) any order accepted prior to April 6, 1943, and rated A-1-c or higher if the system or parts are produced and delivered in accordance with the provisions of Orders M-9-c and M-126 which were applicable immediately prior to that date. For example: Prior to April 6, Order M-126 prohibited the processing, assembly, and delivery of electric drinking water coolers containing iron or steel, except to fill orders of the United States Army, Navy, Maritime Commission or War Shipping Administration, for coolers for use on board ship, in hospitals and in tropical climates (List C). Therefore electric drinking water coolers fabricated or assembled during the period from the date when such restrictions of M-126 became effective, until April 6, 1943, may be delivered under an order rated A-1-c or higher and accepted prior to April 6, 1943 only if such coolers were produced and are to be delivered for those purposes. If produced or to be delivered for any other purpose, their delivery must be specifically authorized.

b. **Change in type of refrigerant.** Paragraph (b) (1) does not prevent the substitution of one type of refrigerant for another if the change does not involve the delivery of any "parts." The restrictions of paragraph (b) (1) apply only to "parts" and the term "parts" is defined in paragraph (a) (2) to exclude liquid or gaseous refrigerants. For example: Where the owner of a system is unable to obtain a chlorinated hydrocarbon refrigerant to keep it in operation, methyl chloride may be substituted as a refrigerant (in so far as Order L-38 is concerned), if no additional "parts" are installed. However, if the change involves the installation of an expansion valve or other "part," it may be made only in accordance with paragraph (b) (1). Moreover, if the "part" which is being replaced is still usable, compliance with paragraph (b) (1) can be had only under subdivision (c) or (d) of the paragraph.

Issued this 10th day of August 1943.
War Production Board,
By J. Joseph Whelan,
Recording Secretary.

Jernberg Heads Mills' War Contracts Procurement

CHICAGO — Forrest E. "Jerry" Jernberg, formerly general sales manager of the company's refrigeration department, has been named manager of war contracts procurement at Mills Industries, Inc.



Anything like this IN YOUR PLANT?

This tubular part is especially fabricated for use in the manufacture of a temperature indicator.

It is made of seamless copper tube 9/16" in diameter and has a wall thickness of .032". After the part is formed to the desired shape (specified by the customer) a length of capillary tube is brazed into one end.

Required for a definite purpose, it was designed by the user in collaboration with Wolverine tube-fabricating engineers. All specifications are being met and the job is in production.

If this piece reminds you of a similar problem of yours involving tube or tubular parts, call Wolverine Tube Division for consultation and quotation. We have hundreds of standard tools already on hand for making parts and assemblies similar to the part shown here, along with a wealth of experience in handling seamless tube.

Or if you prefer to make the part yourself, call on Wolverine anyway as a source for tube that will be uniformly high in quality and possess the right properties for fabricating. Also consult our engineers regarding types of tools, methods, and techniques. Their talents and services are yours for no cost.

BUY WAR BONDS

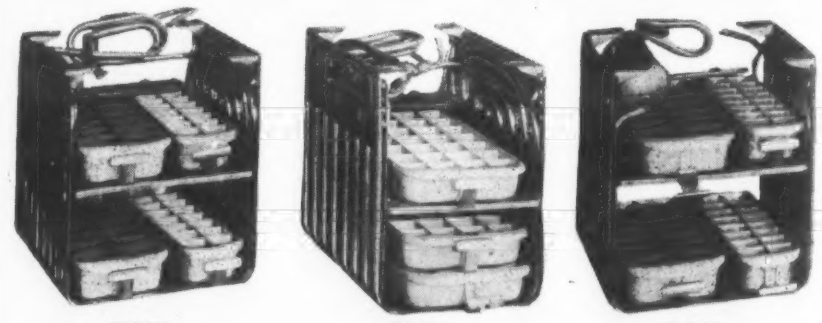
DEFINITIONS

MELTING FURNACE is a refractory-lined metal shell in which metals can be heated to a temperature exceeding their melting points for ease of casting into desired shapes.

• Our new address is Detroit 9, Mich.

CALUMET AND HECLA CONSOLIDATED COPPER COMPANY
WOLVERINE TUBE DIVISION
Seamless Copper — Brass
1413 CENTRAL AVENUE DETROIT, MICHIGAN

Last Call For Evaporators



29232 29471 29849

SPECIFICATIONS AND LIST PRICES

Quan.	Part No.	SIZE D	SIZE H	SIZE W	MTG. DIMS. Front	MTG. DIMS. F to B	No. Trays	List Price
96	29232	12	10	9	6⅛	8⅝	4	$50.00
126	29471	12	10	8	6⅛	8⅛	3	51.00
99	29849	12	10	9	6⅛	8⅝	4	53.00

Copper construction. Price includes No. 672 Detroit Expansion Valve.

No Priority, Trade Discount 50%
Special Prices To Jobbers
Immediate Shipment While They Last

J. M. Oberc, Inc.
REFRIGERATION AND AIR CONDITIONING SUPPLIES
904 W. Baltimore
Detroit 2, Mich.
MAdison 1075

The Priorities Quiz

(Air Conditioning & Refrigeration News, with the aid of a man who is actually engaged in handling much priorities work, will attempt to answer questions from readers about priorities problems. The editors will not guarantee to answer all questions, nor can they guarantee that the answers will be legally perfect, but an effort will be made to provide a guide to correct procedure wherever possible.)

Getting Rating In U.S. For Canadian Order

Q. One of our Canadian customers has asked us to ship material required by them in filling a Canadian war order but advises that under the new Canadian Priority set up that they cannot extend a preference rating. We must have a rating in order to ship the material. Is it possible for us to secure one here in the United States for such a Canadian order?

A. Yes. You may secure from your local War Production Board office a yellow PD-1A form on which you may make application for a preference rating to export material. The yellow PD-1A form is identical with the white PD-1A form to the extent that it provides space for you to show all the pertinent information relative to the use which your customer will make of the items you wish to ship him.

If the value of your shipment does not exceed $500, the form will be processed at the Regional Office of the War Production Board and need not be forwarded to Washington. Under the new Canadian priority system, the only automatic priority your Canadian customers could extend you, would be for material required for maintenance and repair, and then, only up to a limited value.

Special Priority Aid For Laboratory Needs

Q. We operate a small laboratory for research and development in conjunction with our business and we understand that it is possible for us to get special priority assistance for our laboratory requirements. Can you suggest how we should go about securing this assistance from the War Production Board?

A. Preference Rating Order No. P-43 recently completely revised now automatically gives you assistance for your laboratory to the extent that you are engaged in carrying on scientific or technological investigations, testing, development or experimentation. Two preference ratings are provided by the order—AA-1 for a serial-numbered laboratory (meaning a laboratory which has been assigned a serial number by the War Production Board pursuant to application made on Form WPB-167) and AA-2 for "non-serial-numbered laboratories."

To the extent of your laboratory work, you are a "non-serial-numbered laboratory" without any further application on your part and you are entitled to extend the AA-2 rating for your laboratory requirements within the limitations of P-43.

P-43 sets up a special certification paragraph which you must use, in extending the rating and provides an allotment symbol (MRO-P-43) for the purchase of controlled materials (copper, steel, and aluminum).

Keeping CMP 5 Records By Supplies Received

Q. When CMP Regulation No. 5 was first issued, it called for the keeping of records by quantities received. Later, it was changed to require that records be kept by orders placed. We find it impossible to get prices before delivery on all of the maintenance, repair and operating supplies that we require and would like to continue keeping records on the basis of supplies received rather than the amounts ordered. Is this permissible?

A. Yes, it is. The War Production Board issued Direction No. 8 to CMP Regulation No. 5 on June 29 which states that records of MRO supplies may be kept on the basis of supplies received rather than the amounts ordered. The Direction insists, however, that whichever of the methods you adopt you must apply it completely—that is, you may not keep records for part of your supplies on the basis of receipts and another part on the basis of orders. It must all be one way or the other.

Unit Space Heater Sale Now Restricted To AA-5 Orders

WASHINGTON, D. C.—A complete revision of the Extended Surface Heating Equipment Order, L-107, has been announced by the War Production Board.

The revised order restricts distribution of extended surface heating equipment to "Approved Orders"—those which specify a delivery date, are rated AA-5 or better, or which are for repair parts.

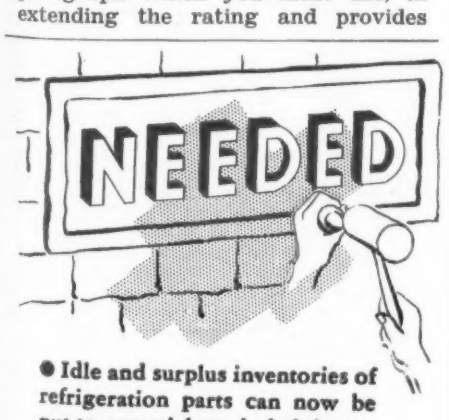
By establishing a provisional scheduling procedure, Order L-107 provides for a better distribution of orders among the various manufacturers in the event that bottlenecked conditions occur during the peak demand season.

Schedule I to L-107 provides an extensive simplification program for the industry. The number of sizes and types of extended surface heating equipment has been reduced.

Extended surface heating equipment means any heat transfer element or any apparatus employing a heat transfer element, designed and constructed for space heating or for industrial heating or drying and using steam or hot water as the heating medium.

It includes, but is not limited to unit heaters, unit ventilators, convectors, blast heating coils and special heating coils. It does not include gas or other direct fired unit heaters, any cooling equipment or any critical heat exchangers, which are covered by L-172.

In your postwar planning consider
Grandfather used a HARDER thresher
Father used a HARDER silo
Mother used a HARDER refrigerator
After Victory
You and Your Family
CAN ENJOY THE CONVENIENCE OF A
HARDER
HOME FREEZER
FRESH strawberries for Christmas . . . fresh meats any day in the year . . . fruits and vegetables for any meal with all the appetizing goodness and health-giving vitamins they contained the day they were picked right from your own garden.
These are some of the benefits you will get with a HARDER Home Freezer.
Shown above is our Freedom model—a carefully designed, economical, long-lasting 12-cubic-foot capacity freezer with eight convenient compartments for different kinds of food. It is designed especially for the typical farm or small town family that believes in good eating the year around.
Other HARDER Home Freezers will follow—and they'll all be available as soon as the war is over or as soon as needed materials of high quality are available in sufficient amounts to put the freezers into line production.
Right now HARDER—one of the oldest names in refrigeration and a company that has done its bit to help win four wars—has its production line going night and day turning out materials of war to speed victory.
A postcard will bring you Free a 48-page, illustrated booklet on Home Freezing of Farm Products
HOME FREEZING of FARM PRODUCTS
HARDER Refrigerator Corporation
A Good Name Since 1859
COBLESKILL, NEW YORK
★ ★ ★ BUY WAR BONDS — SPEED VICTORY ★ ★ ★
HARDER
HOME FREEZERS
HARDER offers opportunity for...
DISTRIBUTORS AND JOBBERS
who are interested in distributing home freezers under their own trade names. We invite you to submit designs and specifications. Our production lines are now busy turning out materials of war, but after victory we will have adequate capacity to produce low temperature cabinets for others in large quantities. All Harder Home Freezers can be operated by any low temperature freon-12 refrigerating machine.
DEALERS
who want to get their share of the postwar home freezer market. Interest in home freezers is growing daily. After victory the Harder line will include home freezers of different sizes and different exterior finishes. There will be a Harder Home Freezer to fill every need.
Write today for further information about the Harder line.
FOR VICTORY
BUY UNITED STATES WAR BONDS AND STAMPS
Half and full page ads like this are now appearing in leading magazines reaching more than a million farm homes.
HARDER Refrigerator Corporation
A Good Name Since 1859
COBLESKILL, NEW YORK



● Idle and surplus inventories of refrigeration parts can now be put to essential use in helping to maintain the nation's huge investment in refrigeration.

We buy outright for cash, usable parts for distribution to over 20,000 refrigeration service-men customers. Let us put your idle inventories to good use — you will then be helping conserve scarce and precious materials.

The Harry Alter Co.
1728 S. Michigan Ave.
Chicago, 16, Illinois

HARDER Refrigerator Corporation
A Good Name Since 1859
COBLESKILL, NEW YORK

How To Apply For Permission To Equip a Refrigerated Locker Plant

WASHINGTON, D. C.—Additional detailed information has been made available on the "paper-work" necessary in making application for the construction and equipping of new refrigerated locker storage plants under the program recently approved by the War Production Board. An allotment of $840,000 worth of refrigeration equipment has been made available for the program.

All of the required forms in the application should be submitted together, since complete information is required before the application can be approved. Applications should be mailed to S. T. Warrington, 4346 South Agricultural Bldg., Washington, D. C.

The applicant should first make sure that his application will not be disbarred because it conflicts with the restrictions set up in the program.

These restrictions are:

1. No new plants or expansions will be approved in towns above 15,000 population, or in suburbs of large cities.

2. No new plants will be approved with less than 3,000 cubic feet (net) capacity in locker room (after deducting the space occupied by the freezing cabinet or freezing room).

3. At least 180 standard size lockers must be rented for one year in advance (in new plants) and the money from the rentals shown to be in escrow at the local bank. For each 30 cubic feet above 3,900 cubic feet, one additional rental must be secured. For plant expansions, which must be within reasonable minimum and maximum limits, 60% of the proposed additional lockers must be rented in advance. From this number, however, may be deducted 20% of the number of lockers rented in the existing plant.

4. Branch plants may be constructed with a minimum of 100 lockers, but subject to the restrictions of "1" as to location.

5. New plants must have a chill room floor area of approximately .6 square feet for each locker capacity.

6. Refrigeration equipment, insulation, and construction must be such that proper temperatures may be maintained.

Form WPB-617 (formerly PD-200), the construction form, is a long and formidable-looking piece of paperwork, but only a part of it need be filled out by the applicant.

On page 1 of Form WPB-617 the applicant should give his name and address and the location of the project in the spaces in which this information is specified. At the bottom of page 1, under "8. Status of project" the date that the project is scheduled to start and scheduled to be completed should be given for both the actual construction and the equipment installation.

"Section A" of the first page of Form 617 lists seven questions (with a number of subdivisions) and the applicant is instructed to attach a separate sheet or sheets of paper the same size as the form and list numerically the answers to items in section "A" in the same order as they appear on the form.

Following are the questions:

1. "Describe principal product manufactured or service to be produced (a) by the facilities covered by this application, and (b) by the plant as a unit.

2. "Describe the project in detail for identification, stating for each structure:

"(a) Whether it is new, an extension, an addition, or an alteration to an existing structure:

"(b) Plan sizes;

"(c) Story heights and number of stories;

"(d) If multistory, whether the structure could be redesigned as one story;

"(e) Type of structure (wood frame, concrete, steel, brick, etc.);

"(f) Any special requirements.

3. "Explain in detail the relation of the project to the war program or to the maintenance and promotion of public health or public safety.

4. "Explain in detail what consideration has been given to:

"(a) Use of other available facilities (now idle or devoted to other purposes).

"(b) Subcontracting any portion of the products or services to be produced in the proposed facilities.

"(c) Conservation of scarce materials in planning the project.

5. "(a) If this project is an expansion of a plant already in operation, approximately what percentage of the business of that plant to which this project directly relates was represented by prime contracts and/or subcontracts with each of the following agencies during the last calendar quarter: Army %, Navy %, Maritime Commission %, Aircraft Resources Control Board %.

"(b) What percentage of such business is expected to be represented by prime and/or subcontracts with each of these agencies after completion of this project. What are the major prime supply contract numbers?

"(c) If this project is for a new plant, what percentage of the business of such plant will be represented by prime and/or subcontracts with each of these agencies? What are the major prime supply contract numbers?

6. "Have you made any other application or proposal related to this project or any part thereof? If so, state:

"(a) Agency to which application or proposal was submitted, and date;

"(b) Action taken, and date;

"(c) What machinery and equipment items were requested.

7. "Have you applied or do you intend to apply for tax amortization privileges (Necessary Certificates) under Section 124, Internal Revenue Code, for facilities at this location?"

Here Are the Forms You Need to Apply For Approval of Building and Equipping a Locker Plant:

- **4 copies of WPB 617 covering plant construction.**
- **3 copies of WPB 2449 covering refrigeration equipment.**
- **2 copies of supplementary form 40R-492.**
- **1 copy of blue print or floor plan of plant.**
- **1 copy of letter of certification from the local bank listing the number of checks and total amount of pre-rental money held in escrow.**

The following are some typical answers as they would be listed on the separate sheet—

1. Frozen food locker plant, to be used for chilling, freezing, and storage of meat, poultry, fish, game, fruits and vegetables.

2. (a) Alteration to an existing structure.
(b) See floor plan sketch attached.
(c) 1 story. Ceiling height 9 feet, 9 inches.
(d) Does not apply.
(e) Wood construction in a brick building.
(f) None.

3. For the supply of civilian needs of the local community. All food stored will be locally consumed; virtually all of it will be locally grown.

4. (a) No similar or substitute existing facilities.
(b) Does not apply.
(c) Lumber is available in local yards, but gypsum wallboard will be substituted in the side walls of the plant if available locally.

5. (a) Does not apply.
(b) Does not apply.
(c) None.

6. (a) None.
(b) Does not apply.
(c) Does not apply.

7. No.

On page 2 of WPB Form 617 the applicant should fill in Part 9 "Estimated Cost of Project." He will probably only have to fill in the part for "land" and "building and other construction."

He should also give answers to Part II "Will utility companies or utility departments of municipalities be required to construct any utility service extensions or other facilities, in addition to facilities which the applicant may install?"

Also to be filled in is Part 12, which specifies: "The project described in this application will require the following additional amounts of utility service: (a) Electric power demand (kilowatts of maximum demand) (b) Water (thousands of gallons per day) (c) Gas (thousands of cubic feet per day).

How much of the information requested on pages 3 and 4 of Form 617 will depend a great deal on whether or not the locker storage plant will be housed in a new or already existing building. Since it is thought that most plants will be housed in existing structures, the illustration is made (see cut) of how an extra sheet or "continuation" sheet would be filled out for the construction of the insulated rooms for the locker plant.

In this "extra sheet" of Form 617 the list of materials is given for the construction of the rooms. Separate the priority and non-priority items.

List by item and code numbers the various items required. (This information is given completely on the Instruction Sheet to Form 617).

The total value, including labor, should be shown on page 2 of Form 617, as indicated previously.

Form WPB-2449 (formerly PD-830), the refrigeration form, must be completely filled out. Page 3 is the important page in this form.

List on page 3 ONLY the actual refrigeration equipment required, and indicate the contract price for such items only, after first deducting installation, wiring, plumbing, compressor base, freight, refrigerant, lockers, advertising, and/or any other charges which may be included in the total contract price to the customer. In this net contract price, do not include any used equipment.

Show used compressors, coils, controls, etc., as separate items, and indicate them clearly, so they will not be charged to the metal bank set aside for the locker plant expansion program.

If the supplier of lockers desires a rating on the lockers which he supplies, list them as an entirely separate item.

(Continued on Page 7, Column 1)

DEATH PLUNGE OF A SEA WOLF

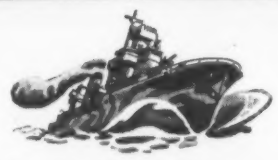
Another U-boat snatched from its wolf pack, blasted up by depth charges to final destruction in a crossfire from destroyers. Fletcher Pratt, noted naval authority, helped us prepare this picture.

On every battle front, Westinghouse-made weapons and equipment are in the fight. On the production front, Westinghouse Air Conditioning and Industrial Refrigeration provide correct conditions of temperature, humidity and air cleanliness to make possible uniform quality, high precision, fewer rejections, faster output.

After Victory, Westinghouse "conditioning" will contribute toward a thousand new-day benefits. Better products at lower cost, greater year 'round comfort and convenience—better living for all.

In helping solve "conditioning" problems, Westinghouse draws upon years of experience with thousands of varied installations. The exclusive hermetically-sealed compressor assures economy, dependability, long life. Inquiries are invited from producers of war materials and from postwar planners.

WESTINGHOUSE ELECTRIC & MFG. CO.
725 Page Boulevard Springfield, Mass.
Plants in 25 Cities . . . Offices Everywhere



SPEED COUNTS. Matched sets of huge propulsion gears for warships are cut in rooms held at constant temperature throughout the entire operation of several days, to insure perfect fit.

EYES IN THE SKIES. So exacting are the manufacturing requirements in many aircraft parts and processes that air conditioning is used to control temperature, humidity and air cleanliness.

SUB DETECTED. Where delicate instruments used for detection and communication are assembled, air conditioning prevents rejects caused by excess humidity, temperature and air-borne dust.

A Wartime Selling Aid for Westinghouse Contractors

This advertisement is one of a series appearing in leading national publications including Time, Business Week, U.S. News and industrial and trade publications. This program of more than 10½ million sales messages is a potent force to help Contractors sell Westinghouse Air Conditioning and Industrial Refrigeration for vital war needs.

Westinghouse *Air Conditioning*

GEARED TO A THOUSAND WARTIME NEEDS

SERVICE SIMPLIFIED
GREATER SATISFACTION
LONGER OPERATIVE LIFE

No. 1791-1794
Up to 120 tons capacity

—a sure thing when

AMINCO OIL SEPARATORS

protect Coils, Condensers, Compressors, Valves and Dehydrators by picking oil out of the refrigerant stream and AUTOMATICALLY returning this oil to its proper place, the crankcase.

Now that replacements are hard, almost impossible to get, those charged with the responsibility of maintaining existing equipment are looking for longer operative life and reduced operating costs.

Aminco Oil Separators protect compressors by maintaining correct oil level in crankcase and by excluding oil from refrigerant stream they enable coils, condensers, valves and dehydrators to function most efficiently.

These oil separators are made for jobs from ⅓ H.P. to 120 tons and are used everywhere, ashore or afloat, where efficient refrigeration is desired.

Full descriptive bulletins on request.

AMERICAN INJECTOR CO.

Pacific Coast—Van D. Clothier, 1015 E. 16th, Los Angeles
Export: Borg-Warner International Corp.,
310 S. Michigan Ave., Chicago, Ill.

Typical Materials Sheet For 617 Construction Form

Form WPB-617 Formerly PD-200 (5-22-43) CONTINUATION SHEET — Page ___ of ___ Pages

Name of applicant: Jones Locker Plant

Location of project (city and state): Middletown, Nebraska

Enter below all materials and equipment required for the project or major structure, subdividing the material and equipment according to the headings for sections C, D and E. (READ INSTRUCTIONS CAREFULLY).

Item No. (a)	CMP Code No. (b)	Unit of Measure (c)	Description and Use (Indicate used items by placing word "Used" after such items.) (d)	Total Requirements Including Items in Applicant's Possession (e)	Items To Be Purchased (f)	Quarter in Which Shipment is Required (g)	For WPB Use Only (h)
			SAMPLE FORM				
			No priority assistance necessary:				
		Lbs.	Palco Wool insulation	10,000	10,000	7	
80		"	Asphalt	400	400	7	
83		Squares	Asphalt Paper	150	150	7	
115		Gallons	Paint	20	20	7	
20	2061	Lbs.	Nails	150	150	7	
108			Doors	2	2	7	
99		Mbm.	Flooring and siding lumber Note: Gypsum wallboard may be substituted for a portion of the siding lumber if available.	5.3	5.3	7	
97		Mbm.	Construction lumber	2.6	2.6	7	
60		M	Common and face brick	2	2	7	
104			Wood frame windows	6	6	7	
			Priority Assistance Requested				
108			Insulated Refrigerator Doors	5	5	7	
37	3101	Feet	#14 Insulated Wire	400	400	7	
37	3101	"	# 8 Insulated Wire	50	50	7	
32	2551	"	½" Steel Conduit	150	150	7	
			Pilot Light Switches	2	2	7	
			Electric Socket Outlets	10	10	7	
			Electric Junction Boxes	10	10	7	
			30 amp. Square D Switch	1	1	7	
280		Dollars	Finish Hardware	25	25	7	

Note to Contractors:
All item and code numbers appear on the instruction sheet enclosed herewith.

Details on Applying For Locker Plants

(Continued from Page 6, Column 5)

The price to the customer of the actual items of refrigeration equipment should be shown in the right hand column, as a basis for the WPB to compute the amount to be charged to the metal bank.

List as a separate item the weight (or board feet) of insulation, and its cost. This is desired by the Refrigeration Section of WPB for informational purposes only, since it is also included on Form 617.

Do not include power saws, rendering kettles, track, or any other accessory items. WPB-2449 is for refrigeration equipment only. The point is made that the smaller the amount shown in the net contract price is kept in each application, the more plants the industry will be able to install.

Filling Out 40-R-492

Form 40-R-492 is a supplementary form to WPB-617. It must be completely filled out, signed by the applicant, and verified by a member of the County War Board.

In Form 40-R-492 the applicant must (1) attach one copy of floor plan or blueprints of the proposed plant, with room dimensions, purpose of rooms, insulated room ceiling heights, type and thickness of insulation, and refrigerated room temperatures.

(2) Indicate refrigeration capacity by compressors, and give the type and size of coil for each room.

(3) Give total locker room capacity; (4) list equipment items that are to be used; (5) indicate proposed investment in land, building, insulation, refrigeration, lockers, processing equipment.

(6) Indicate sources of funds—from operator, owner, banks, and other sources.

(7) Indicate rates to be used for processing, and annual locker rental rates by rows, and giving notes on any variations.

(8) A. For new plants, give number lockers rented in advance and number of families renting lockers; B. For expansion of existing plants give number of lockers rented in existing plant, number of families renting lockers in existing plant, number of lockers rented in proposed expansion, number of families renting lockers in proposed expansion. C. Indicate total amount of advance locker rentals held in escrow. D. Name of bank or other agency.

(9) Estimate the percentage of the farms in the trade territory of the proposed plant which produce some beef, pork, poultry, fruits, vegetables, and give average size of farms in trade territory.

(10) List other locker plants within 20 miles.

(11) Check those facilities which are located within 10 miles of the proposed plant, such as meat packing house, commercial cold storage warehouse, poultry dressing plant, commercial frozen food packer.

(12) Estimate number of farm families which use the town as their regular trading center, and indicate population of town in which plant is to be located; (13) list surrounding towns; (14) indicate the location of plant with respect to the trade center and give reasons for so locating.

(15) File three copies of completed form, together with application with the County U. S. D. A. War Board, which Board shall verify the facts stated on this form and attach letter of verification thereto.

The applicant is also requested to attach an estimate of the pounds of each kind of product he expects to freeze during the first year of operation, and also to indicate the amount of other processing such as curing, smoking, lard rendering, which he expects to do during the first year.

The applicant must present a letter or other certification from the local bank as to the number of checks and the total amount held in escrow by them on advance locker rentals.

Forms WPB-2449 and WPB-617 will ordinarily be available through the district or regional WPB offices. Form 40-R-492 will be in stock in the state, but possibly not in the County War Board Offices.

Extreme Accuracy

☆

"Detroit" Expansion Valves and Automatic Controls are operating on thousands of air conditioning and process control installations. Today, in addition to doing our bit for Victory in the manufacture of vital material for our armed forces, we are keeping pace with the important developments in the refrigeration field and will be ready Tomorrow to make our contribution to the products of peace.

☆

TODAY ☆ ☆ ☆ ☆ ☆ ☆ ☆

In countless war plants engaged in the manufacture of vital parts for aircraft, tanks, ships and guns, it is necessary to control temperature and humidity within close limits to insure the extreme accuracy of size and fit so necessary to dependable performance of the finished part on the field of battle.

Such accuracy cannot be obtained without the help of air conditioning and refrigeration. This is but one of the contributions the refrigeration industry is making to Victory.

TOMORROW ★ ★ ★ ★ ★ ★

This same precision will be required in the mechanical products, which in the fields of land and air transportation, better products for the home, and better living and working conditions, will make for a new America.

We salute the Refrigeration Industry that today serves, and tomorrow will serve so well, the American people.

DETROIT LUBRICATOR COMPANY

General Offices: DETROIT, MICHIGAN

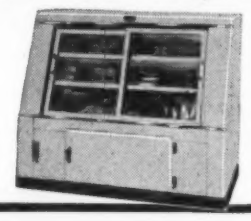
Division of AMERICAN Radiator and "Standard" Sanitary Corporation

***Canadian Representatives*—Railway and Engineering Specialties Ltd., Montreal, Toronto, Winnipeg**

Sherer REFRIGERATORS IN THE SERVICE NOW!

★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Sherer equipment serves in army camps; in hospitals as blood banks; in preservation and conservation of foods everywhere. Sherer equipment is an important link in the Victory chain.



Write for franchise details now!

SHERER-GILLETT CO.
MARSHALL, MICHIGAN

Air Conditioning Advances In Optical Plants Afford Our Armed Forces Superior Equipment

Editor's Note: Henriette Betlem of the Betlem Heating Co. of Rochester, N. Y. is a woman who has made her mark in the field of air conditioning—particularly in recent years in the industrial air conditioning field. Much of the Betlem company work in this field has centered on work for optical plants, as Rochester is the nation's optical manufacturing center.

By HENRIETTE T. BETLEM

"Air conditioning in optical manufacture" is a phrase which has been thrown about so readily in the past year or two that many people, including a great number actively engaged in air conditioning work, must get the idea that it is an "old" application of the art of air conditioning.

But the experience of our company, located in the center of America's optical manufacturing industry, reveals that the development of this application has been confiend to the past five years.

We got a foothold in the field because our work in industrial and commercial installations had gained the attention of the local power company. All emphasis was placed on quality in our jobs, and when a sale was made the entire company worked hard to make that particular job the best installation possible. The power company representatives took cognizance of this and they had us "on call" to solve many problems in air conditioning or ventilation.

In 1936 the Bausch and Lomb Optical Co. was persuaded by the local power company to experiment with one small installation of a fan and filter unit for dust removal. This proved so effective and beneficial to operations that the company felt encouraged to attempt a larger installation. Our company was one of those recommended to them to bid on the job.

Knowing that it is very often impossible to present the sales picture to the ultimate buyer we made our proposal and blue prints as complete as possible. They had to sell the job for us—and they did. To this day we have never made a formal sales presentation to the concern and each year we have sold them successively more equipment.

The various installations which we subsequently made proved conclusively to Bausch and Lomb that air conditioning was an absolute necessity in the manufacture of precision optical equipment.

DUST CONTROL ALL-IMPORTANT

Dust control is of primary importance in every one of the more intricate steps of the manufacture of optical goods. The problem was of such importance that it led to the development of a "dust counter." While this enabled the optical manufacturing concerns to make an accurate check of the dust count of the air, they were unable to take the dust out of the air until we installed electric precipitators.

A minute speck of dust cemented into a lens might render the lens useless. A look at the intricate arrangements of lenses and prisms built into a range finder quickly enables one to visualize how fatal a speck of dust might be in the wrong place. It might well obscure the sighting of an approach of an enemy plane.

Or, let us assume that the Army and Navy were unable to buy binoculars and range finders made in air conditioned spaces. We will assume further that a number of these pieces of war equipment were assembled on a very humid day. They passed inspection 100%, and were put in use and proved most effective until the season changed to winter. Then with one good cold day they might become useless, because of condensation.

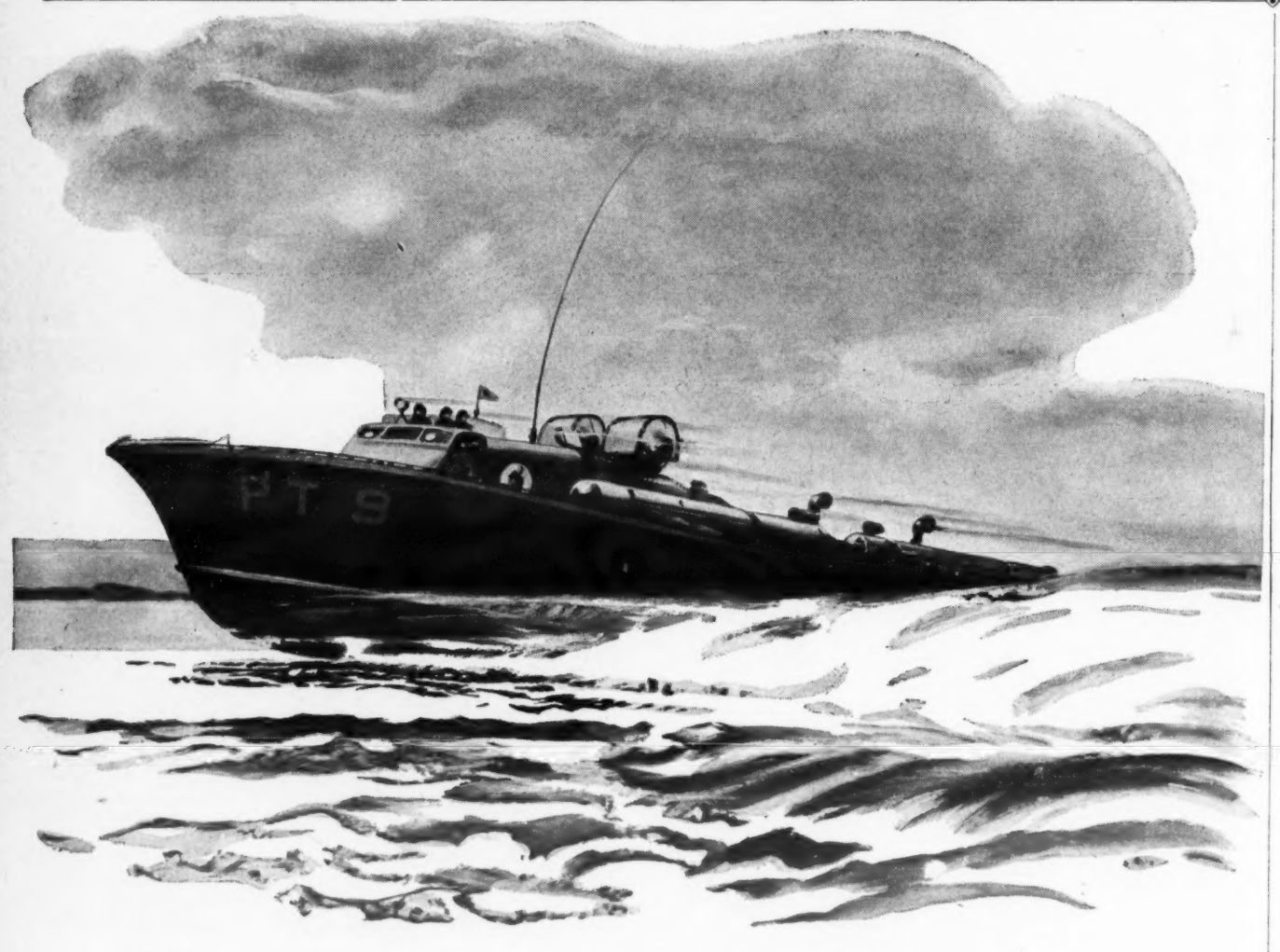
Reason for this is that a large percentage of optical equipment is composed of a group of lenses cemented together in cylinders. These cylinders must be airtight. If too much mois-

(Concluded on Page 9, Column 1)

Two Steps In Making 'Eyes' For Our Armed Forces

Range finders must be air tight and water tight. In final test they are filled with compressed gas and completely immersed in water. A bubble may mean rejection. To control expansion and contraction of metals and eliminate the danger of perspiring hands marring the surfaces, the temperature and humidity of the air in plants making these instruments are held constant by means of air conditioning.

Here a final check is being made for perfection of binocular color filters. again in a room that has clean air under temperature and humidity control.



Mongoose of the Sea

'Ever see that movie of a mongoose fighting a cobra?

Then you know what an Axis battleship is up against when it tries to parry the lightning thrust of a Yankee P-T boat.

Some day we can tell you what Houdaille★ makes for these swift little avengers of the deep. And for the American-made planes that have seized command of the air from our enemies. And what Houdaille is making for United Nations' motorized equipment—from the amazing jeep to the heaviest truck, tank or motorized field piece.

But all we can say now is that, on every battle-front—on land, sea and in the air—Houdaille is doing its full part to insure quick and absolute victory. And that, out of this experience of war, Houdaille engineers and craftsmen are learning to do many things better than they have been done before.

Things, which in days to come, will change favorably the pattern of American life.

A new world is in the making—and *Houdaille is sitting in on its design.*

HOUDAILLE - HERSHEY CORPORATION

General Executive Offices—Detroit

Manufacturers of precision parts and equipment for the automotive, aircraft, railway, maritime, electrical refrigeration, radio, and other industries.

PLANTS AT: Buffalo, N. Y. • Cheektowaga, N. Y. • Jackson, Mich. • Detroit, Mich. • Chicago, Ill. Decatur, Ill. • North Chicago, Ill. • Muskegon, Mich. • Oshawa, Ont., Canada

BUY U.S. WAR BONDS

★Pronounced "HOO-DYE"

PORTABLE ENGINEERED COOLING FOR INDUSTRY

There is a Frostrode, packaged ready to install, unit for every job

FROSTRODE refrigerating units made zero-welding possible. Their design is based on research plus experience—the "Know-How" of both refrigeration and welding. This unique combination is available to you in the form of direct engineering and sales assistance.

Frostrode refrigerating units are demanded by industry because they enable increases in output when output is vital, cut production costs, and increase product quality.

Write or wire today for complete details including the EXCLUSIVE Frostpoint electrodes with quick replaceable cap—available to distributors of Frostrode line of coolers.

for

ZERO-WELDING

REFRIGERATION DISTRIBUTORS Here's a hot line you can sell now!

Packaged portable Refrigeration units ready to install

by the originators of the now widely demanded ZERO-WELDING process

Complete range of 10 sizes—from ¼ to 10 horsepower

Backed by regular advertising in Welding and Industrial Journals

Refer your zero welding inquiries to FROSTRODE

FROSTRODE PRODUCTS

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Air Control So Important In Optical Work That Rooms Are Often 'Sealed'

(Concluded from Page 8, Column 3)
ture is sealed in them it can never be removed.

Therefore, wherever air-tight lens assemblies are required the work must be done in surrounding conditions of low relative humidity. This means that a sealed room is a requirement. As with the case of dust control in optical manufacturing plants, all windows and doors are kept closed at all times. All entrances have vestibules with double doors to shut out the undesirable atmospheric conditions.

Air cooling is a "must" throughout the various processes of optical manufacture. In most of the assembly and grinding rooms there is a high internal heat load from electric motors and open gas flames. With windows sealed it would be unbearable to work in these spaces. But even in the grinding and polishing rooms the reduction in temperature is not done for the purpose of comfort. These operations are accomplished by setting lenses in a certain position in wax and subjecting them to a period of machine polishing and grinding. If the wax slips the lens would be ruined, and it is well known how readily wax melts.

Today this "industrial processing" type of air conditioning application is common practice wherever lenses are manufactured. However, we still feel that had not those first jobs been successful, the precision work in this field might have been retarded several years.

Air conditioning systems cannot be sold now unless a preference rating is granted for the necessary equipment, so another step is added to the estimating procedure. Before a priority can be granted a complete list of all material required, including equipment, controls, outlets, and ductwork, etc., must be sent to the proper authorities for processing.

Therefore the first step in making a priority is to assist the manufacturer in making out this list. This entails making a fairly accurate load calculation, a selection of equipment, and figures on the total poundage of ductwork.

All of these items must be tabulated on a government form. When this form is accepted and processed it will be returned to you with a preference rating. Then you are ready to start figuring the job. If it is a government job you will have at least two other competitors (government regulations) and the job will have to be awarded to the lowest bidder who complied with the specifications.

For your own protection, all the work you can do in assisting the manufacturer in getting the "specs" ready will be well worth while. If you can get your make of equipment specified, so much the better. Generally speaking, the buyer will adhere rigidly to those specifications, once they are made.

This is all preliminary work and is wasted if the job goes to a competitor, but if it is left to your competition to supply this information he is that much closer to getting the order than you.

Weatherhead Offers Data On 'Ermeto' Fittings

CLEVELAND — The Weatherhead Co. has just issued a 4-page booklet of special instruction on the installation of Weatherhead's line of Ermeto safety fittings, company officials announce.

Released especially for new users of Ermeto safety tube and pipe fittings, the folder outlines step-by-step, with illustrations, assembly and disassembly of the safety tube fittings.

Copies of this instruction book can be obtained by writing to the company at 300 East 131 Street, Cleveland, or to the Weatherhead Co. of Canada, Ltd., St. Thomas, Ontario.

S. Ray Thompson Joins Chicago Service Firm

CHICAGO—S. Ray Thompson has joined Refrigeration Service Co. at 1954 N. Halsted here in the capacity of service engineer, officials of the company announced recently.

Thompson has been associated with the refrigeration and air conditioning industry for many years.

Third Installation Is Made For Bausch & Lomb

ROCHESTER, N. Y.—The accurate gun fire of America's fighting ships in the Far East and the devastating effects of American artillery in North Africa are due in large measure to the utilization of modern air conditioning equipment in the plant of Bausch & Lomb, optical manufacturers of Rochester.

Recently, Betlem Heating Co., Rochester dealer for Carrier Corp., completed the third installation of air conditioning equipment in the binocular assembly room of the optical manufacturer. Air conditioned rooms are required for the preparation of optical parts of binoculars because dirt cuts the light gathering properties of the prisms and lenses. In cementing the lens element, the room air must be scrupulously clean in order that the Canda balsam shall not be contaminated. Also, the temperature must be held within close limits both for applying the balsam and for drying.

Carrier air conditioning is also being called on at Bausch & Lomb to aid in high precision work in the manufacture of range finders and height finders, essential components of modern warfare. In space where these products are manufactured, assembled and tested, air cooling equipment reduces heat that is generated by motors and people, eliminating danger of expansion or contraction of delicate metal parts by maintaining constant temperature. Likewise it controls humidity to prevent corrosion caused by perspiration on the fingers of workmen. The installation helps to make possible the use of the former Art-in-Buttons plant for precision work.

In the assembly of lenses in microscopes, air conditioning is used to dehumidify the air between the assembled lenses so that they will not fog up under the varying temperature conditions of field use. Absolute dust control is required because a speck of dust on a range finder, for example, might look like a distant airplane to the observer. What this might mean in combat conditions is obvious.

Polishing lenses is another delicate operation which calls upon air conditioning to help insure perfection. For the polishing process, lenses are mounted on wax and any change in the wax, either softening or hardening, might cause inaccuracies. Consequently, it is important that the wax mountings remain the same during polishing, and air conditioning insures against the possibility of changes.

Buensod-Stacey Seeks Pennsylvania Charter

PHILADELPHIA. — Buensod-Stacey Air Conditioning, Inc., has applied for a charter to do business in Pennsylvania as a business corporation. The company was originally chartered under the laws of the State of Delaware. For its operations here, the company will operate under a new name, to be known merely as Buensod-Stacey, Inc.

E. B. Newill To Manage G-M Allison Division

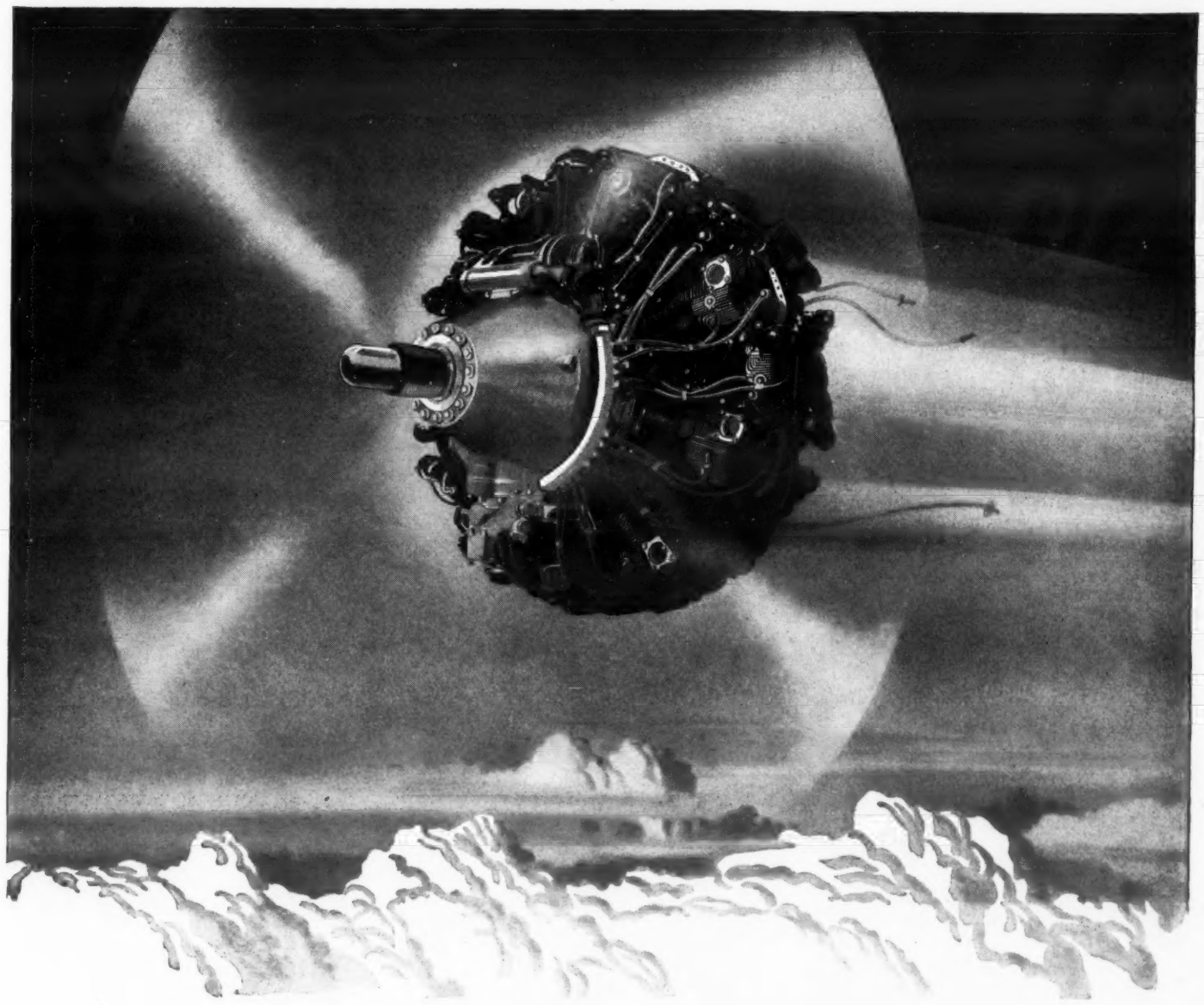
E. B. NEWILL

* * *

NEW YORK CITY—C. E. Wilson, president of General Motors, has announced the appointment of E. B. Newill as general manager of the Allison Division in Indianapolis.

Mr. Newill had been assistant to E. F. Johnson, vice president of General Motors in charge of G-M's Eastern Aircraft Division and the G-M Divisions in Dayton.

For many years prior to holding this position Mr. Newill had been connected with the Frigidaire Division of General Motors, first with the engineering department and later in an executive capacity.



What's UP...NOW?

UP is 50,000 feet . . . 10 miles!

It's 67 degrees below zero up there. So men and machines must be acclimated . . . in advance.

Otherwise, oil could freeze . . . gasoline "boil" . . . rivets pop. For strange things so often happen in the stratosphere.

This is why our Government is taking extraordinary measures to duplicate . . . on the ground . . . the exact conditions an airplane will encounter when it's *really* up.

This is why enormous wind and ice test-tunnels are being built. And in one of these CARRIER is installing the largest low-temperature refrigeration system in the world.

How large is "largest"? It would take a cake of ice weighing 42,000,000 pounds . . . *melting every single day* . . . to match the cold produced by those 14 huge CARRIER machines.

In this vast, new test-tunnel the extremes of temperature at every flight-level, up to 50,000 feet, will be reproduced . . . to help American pilots conquer the stratosphere and so command the land beneath.

Thus, today, CARRIER makes another important contribution to America's aviation industry and its war effort.

Tomorrow, in the post-war world, developments resulting from our war production experience will have broad peacetime application—in new improved air conditioning and refrigeration equipment. New markets will be opened up—sales opportunities will be greater than ever before!

CARRIER CORPORATION, Syracuse, New York

AIR CONDITIONING **Carrier** REFRIGERATION

Filtrine WATER COOLERS

Cafeteria Models
Self-contained Storage
And Remote Types

Shipboard and Land Use
for
Film Processing
Bakery Service
Drinking Water
Brine Cooling
War Industries
All Purposes

Complying with
Army and Navy Specifications
Immediate Shipment

Filtrine
MANUFACTURING COMPANY
53 Lexington Ave., Brooklyn, N.Y.

Cooperative Effort Gets Vital Service Manpower Figures in Capital

Electric Institute of Washington Survey Is Basis For Replacement Schedule Program

Service Dealers Fill Out Forms To Show Status of Men

WASHINGTON, D. C.—Evidence of an organized, aggressive effort to prevent the breakdown of appliance servicing has come from the city of Washington itself in the vigorous campaign being waged by the Electric Institute, local trade association led by J. S. Bartlett.

The possibility of a shortage of servicemen occurred to the Washington group last November, and they backed a press survey of existing personnel. Figures showed that with two months still to go, 1942 already had suffered a 26% loss of refrigeration servicemen employed during 1941.

A closer scrutiny of the records revealed that of those remaining, 30% were less experienced replacements, working in the place of top men who had gone into the armed forces or, more often, into better jobs.

But what was most disturbing was the prospect ahead: A full half of the experienced appliance servicemen were eligible for early induction into the nation's armed forces.

The repair and servicing problem meanwhile was piling up on its own. With WPB's limitation orders to manufacturers, production of almost all types of electric appliances had stopped early in 1942.

Normally, the sale of new equipment used to mean the replacement of old, less efficient machinery. By checking over dealer figures, the following round-number estimates were compiled:

Some 215,000 Washington families owned electric appliances which must be kept in good running condition. For the overall figures, there were:

295,000 radios
203,000 hand irons
175,000 electric refrigerators
125,000 vacuum cleaners
77,000 washers
45,000 electrically operated and controlled heating plants
24,000 electric ranges

The percentage of replacement sales varied, but in each instance they served to indicate how often appliances that used to cause almost no trouble, because they were new, now could be counted on to become repair problems because they couldn't be replaced by new machinery.

The dealers' figures showed that new radios were replacement sales 80% of the time, vacuum cleaners 70% of the time, refrigerators 40%, and washing machines 25%. These percentages of the above total appliance figures presented a staggering service prospect.

The November survey had indicated an appliance increase of 22% in 1942 over 1941's figures. With no new machines available, the Institute could estimate a rise of 50% by the end of 1943.

The evidence presented by the figures could not be questioned. The Institute had, by personal interview and personal scrutiny of records, contacted and talked with 139 agencies employing 472 men who had spent all or part of their time repairing 90% of the city's electric appliances.

The need for immediate action was equally obvious. First of all, the Institute reasoned, the service agencies should take stock on how they stood. How many of their servicemen were liable to be called into the Army in the near future?

It was up to the Institute to start from scratch. The first step called for would be one of contacting every agency and organization concerned, and of giving them the facts presented by the overall picture drawn by the Institute's November survey.

(Continued on Page 11, Column 1)

Repair and Service Industry Replacement Schedule Forms

Employe's Individual Form

Employe's Individual Form
Agency Number .....
Employe's Number .....

THE ELECTRIC INSTITUTE
of Washington
REPAIR AND SERVICE INDUSTRY
REPLACEMENT SCHEDULE

1. JOB TITLE .....
2. NAME OF EMPLOYE.....
3. RESIDENCE ADDRESS..... PHONE NUMBER.....
4. AGE..... DATE OF BIRTH.....
5. LOCAL BOARD NUMBER..... ADDRESS.....
6. SELECTIVE SERVICE ORDER NUMBER.....
7. SELECTIVE SERVICE CLASSIFICATION..... DATE OF THIS CLASSIFICATION.....
(This should be taken from your latest notification card)
8. FAMILY RELATIONSHIP:
SINGLE..... MARRIED..... WITHOUT CHILDREN..... IF CHILDREN,
HOW MANY UNDER 18 YEARS OF AGE..... DATE OF BIRTH OF YOUNGEST.....
.....COLLATERAL DEPENDENTS: DESCRIBE.....
.....
9. NAME OF REPAIR AGENCY.....
10. ADDRESS .....
DATE..... SIGNED.....

Background Form - - Employe

Background Form—Employe
Agency Number .....
Employe's Number .....

1. NAME OF EMPLOYE.....
2. RESIDENCE ADDRESS..... PHONE.....
3. DATE ENTERED PRESENT EMPLOYMENT.....
4. AVERAGE HOURS WORKED PER WEEK AT PRESENT JOB.....
5. JOB TITLE .....
6. DESCRIPTION OF DUTIES (If more than one type of repair work is done, state approximate percentage of time given to each type per week.)
.....
.....
.....
.....
7. STATE EXPERIENCE (years and months) IN THE FOLLOWING FIELDS:

	Total Experience Years	Total Experience Months	Experience With Present Employer Years	Experience With Present Employer Months	Name of Previous Employer
REFRIGERATORS					
WASHING MACHINES					
ELECTRIC RANGES					
RADIOS					
SMALL APPLIANCES					
OIL BURNERS					
MOTOR REPAIRS					
ELEVATOR REPAIR AND INSTALLATION					
OTHER ELECTRICAL REPAIR, MAINTENANCE					

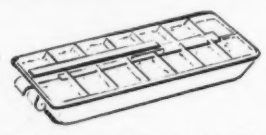
8. Has a 42-A Form been filed for you by your employer?
YES..... DATE FILED..... NO.....
9. Have you made a personal appearance before your local board for purposes of presenting evidence against a reclassification?
YES..... NO..... Date of Appearance.....
10. Has the employer appeared in the above hearing? YES..... NO.....
11. Has an appeal ever been made to the State Board of Appeal against a reclassification decision of the local board?
YES..... DATE..... NO.....
GRANTED..... PENDING.....
12. If registered in other than the District of Columbia, have you ever requested transfer of an appeal?
YES..... DATE..... NO.....
13. Have you ever received any period of deferment? YES..... NO.....
If Yes, DATE..... DATE OF EXPIRATION.....
14. Have you ever been reclassified? YES..... NO.....
Previous Classification..... New Classification..... Date.....
15. Has the local board ever ordered you to take a physical examination?
Date..... Results.....
16. State any reason you have for believing that you may be disqualified for active service by reason of any physical handicap or condition:
.....
.....
17. NAME OF EMPLOYER .....
ADDRESS..... PHONE.....
NAME OF PRINCIPAL.....
DATE..... EMPLOYE'S SIGNATURE.....

We hold these truths—

Our 6,000 Inland fellow workers... American men and women with certain inalienable rights and beliefs . . . a common faith in their Inland-carved future . . . have a deep and enduring determination to apply each day, to their utmost, their heard-earned engineering and manufacturing "know-how" in the production of arms and materials for Victory.

And these Inlanders (and their 900 comrades on military leave) see beyond our many current contributions to the war effort a clear-cut pattern of peacetime service to you.

These truths we hold to be self evident, *and demonstrable.*



INLAND MANUFACTURING DIVISION
General Motors Corporation *Dayton, Ohio*

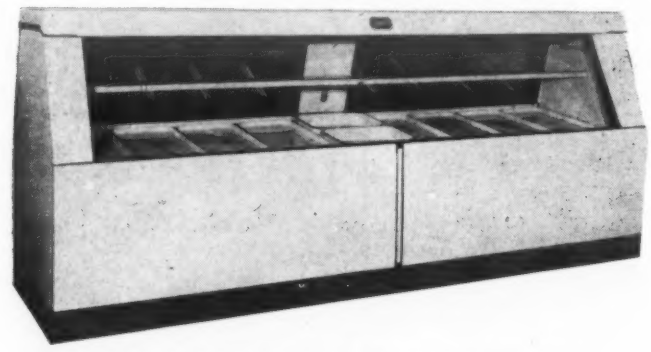
Illustrated is one of the series of Inland designed posters appearing throughout our plant and the plants of our numerous sub-contractors as part of our war production drive activities, which has helped our employes Beat Their Quotas of production for—

VICTORY WORK BY INLAND

Enlisted for Victory are the following products of Inland's Laboratory Controlled Manufacture: carbines; plastic helmet liners and extinguisher horns; tank tracks, clutches; Army truck clutches, brake linings; gun sights, shoulder rests; Army and Navy aircraft steering wheels; Marine engine motor mounts; parts for airplane motors, torpedo boats, submarine chasers, landing craft and artillery lighters.

INLAND
INLAND MANUFACTURING
Rubber, Metal, Plastics

DOUBLE DUTY DISPLAY CASE
SERIES 4200



AVAILABLE WITHOUT PRIORITY
CASES WITH SCALE SHELF, WRAPPING SHELVES AND COILS

GLOEKLER MANUFACTURING CO.
ERIE - PA.

Organized Effort Collects Data on Service Manpower Sought by Draft Officials

(Continued from Page 10, Column 3)

Thus throughout April, 1943, the Institute prepared bulletins giving facts and figures on the critical situation, going into specific detail as to exactly how each field of appliance maintenance and repair served the community and backed up the successful administration of the war effort.

The bulletins pointed up the number of electric appliances that must be kept running, the diminishing number of experienced servicemen, and the increasing load that this small home-front army was facing.

The conclusive point made in each bulletin was that an organized, unified effort to arrest further withdrawals of manpower would be necessary, or the entire services industry would be snowed under.

Coupled with this would be the organization of a concentrated training program, not to train replacements for experienced servicemen, because that would take far too long, but to train men and women who could work with experienced servicemen and gradually take up the slack.

At the end of April the Institute mailed questionnaires to all the city's service and repair agencies, one form asking for the data required in establishing details of each worker's service experience and ability, and another for the information establishing his Selective Service classification.

A third form asked for a complete breakdown of information about the agency itself, listing the number of employes, the nature of their work, comparative figures on service business volume in 1941, 1942, 1943, and on the training and replacement picture.

Figures from 62 agencies, representing 220 servicemen, corroborated the facts brought out by the survey taken the preceding November: That 50% of their present servicemen were eligible for induction in the near future, and that the volume of repair business was steadily rising far out of reach of the trained manpower available.

The Institute thus was able early in May to present to the local draft boards a clearly outlined exposition of electric appliance service problem in their city.

Information was submitted on the shortage of men in all industries, blocking any hope for a pool of experienced men to draw on. The Institute presented evidence showing that it had advertised regularly in the daily papers without success.

Out of a total of 94 men who had answered the ads, exactly one qualified as an experienced serviceman. Of the remainder, 58 were judged capable, upon interview, of being trained. The applicants for the most part carried 4A, 4H, and 4F classifications. Their ages ran as high as 64.

Estimates on the length of training required, based on the Institute's survey figures, indicated that a refrigerator or motor serviceman needed between three and five years to reach thorough efficiency, a washer or small appliance repairman from two to three years.

Such training time would not be available for present replacements, the letter submitted. The maximum allowable time would have to be cut down to one year.

The Institute's facts as presented verified that the individual repair and service agencies had exhausted the normal procedures through which deferments could be obtained since such agencies had first been declared essential on Jan. 6, 1943.

This information was backed up by the replacement schedule forms originally filled out by the agencies, giving the status of each serviceman and the date of his scheduled induction, and the status of each agency with its need for securing replacements.

This complete information, presented in simplified form, was submitted at the suggestion of William E. Leahy, director of Selective Service in Washington, the Institute explained. Mr. Leahy expected to present the subject to the local boards in the near future, and felt that the facts in writing might be helpful and to the point.

The letter closed with the respectful offer of any further assistance the draft board might care to ask for.

All of this preparation and organization presents a terrific job, Mr. Bartlett has since pointed out, but it seems necessary to the problem, and no other solution so far has come into view.

Keystone to the whole plan, he is convinced, is finding one man in each trading area who will take on the responsibility for organizing the industries concerned into an active, cooperative group, and who will keep them going until the necessary data is secured and the necessary moves gone through.

The facts cannot be established by any one service agency, he has emphasized. In order to carry weight with any draft board, the picture presented must be a composite of the entire trading area, and the group replacement schedule submitted must be for the benefit of all.

Employer's Information Form

Employer's Information Form
Agency Number .....

NAME OF AGENCY.....

ADDRESS..... PHONE NUMBER.....

PRINCIPAL .....

STATE TOTAL NUMBER OF MALE EMPLOYES..... TOTAL NUMBER OF FEMALE EMPLOYES.....

ON ATTACHED SHEET LIST MALE EMPLOYES IN GROUPS ACCORDING TO THE SERVICE RENDERED.

BE SURE TO SPECIFY TYPE OF REPAIR SKILL.

WHAT WAS YOUR APPROXIMATE VOLUME OF REPAIR BUSINESS IN 1941 $.....

Give approximate amount in each of the following repair services:

Refrig.—Domestic	$.....	Electric Ranges	$.....
Refrig.—Commercial	$.....	Small Appliances	$.....
Radios	$.....	Motor Repair	$.....
Elevator Repair	$.....	Laundry Equipment	$.....
Oil Burners	$.....		
Other Electric Repairs and Maintenance	$.....		

State average number of repairmen employed weekly in 1941.....

WHAT WAS YOUR APPROXIMATE VOLUME OF REPAIR BUSINESS IN 1942. $.....

Give approximate amount in each of the following repair services:

Refrig.—Domestic	$.....	Electric Ranges	$.....
Refrig.—Commercial	$.....	Small Appliances	$.....
Radios	$.....	Motor Repair	$.....
Elevator Repair	$.....	Laundry Equipment	$.....
Oil Burners	$.....		
Other Electric Repairs and Maintenance	$.....		

State average number of repairmen employed weekly in 1942.....

WHAT WAS YOUR APPROXIMATE VOLUME OF REPAIR BUSINESS IN 1943. $.....

Give approximate amount in each of the following repair services:

Refrig.—Domestic	$.....	Electric Ranges	$.....
Refrig.—Commercial	$.....	Small Appliances	$.....
Radios	$.....	Motor Repair	$.....
Elevator Repair	$.....	Laundry Equipment	$.....
Oil Burners	$.....		
Other Electric Repairs and Maintenance	$.....		

State average number of repairmen employed weekly in 1943.....

Have you been able to secure any replacements YES..... HOW MANY..... NO.....
Have you any men now in training YES..... HOW MANY..... NO.....

LIST BELOW ALL MALE EMPLOYES ACCORDING TO THE SERVICE RENDERED. BE SURE TO SPECIFY TYPE OF REPAIR SKILL.

EXAMPLE:
Refrigerator repairman —John Jones—(key)
Refrigerator repairman —Jack Brown—(skilled)
Motor repairman —Harry Smith—(semi-experienced)
Washer repairman —Bill Green—(apprentice)
Truck driver —Bob Johnson
Porter —George White

JOB TITLE	NAME OF EMPLOYE	TYPE OF REPAIR SKILL, IF ANY

SIGNED.....

DATE..... FIRM.....

LET GEORGE DO IT!

An alert Ansul representative, Mr. Vermilye is known far, wide and well among the refrigeration industry in Ohio, Indiana, Kentucky, Tennessee (excepting Memphis), the eastern half of Missouri, the southern half of Illinois, the lower half of southern Michigan.

If you're in his territory, you too can rely on him for quick, efficient service. The address is G. B. Vermilye, Ansul Chemical Co., 906 Inland Blvd., Indianapolis, Indiana.

ANSUL
CHEMICAL COMPANY
Agents for Kinetic's "FREON-12"
MARINETTE • WISCONSIN

Liquid Sulphur Dioxide ANSUL — Liquid Methyl Chloride ANSUL

Orders Filled the Day Received

AC-69

TWENTY-EIGHT YEARS OF KNOWING HOW

HERE'S HOW *Temprite* *Oilrite* AUTOMATIC OIL SEPARATOR *Improves* OPERATION OF LOW TEMPERATURE REFRIGERATION EQUIPMENT

SIZES
Capacity from 1/6 H.P. to 50 tons. Operates with either Sulphur Dioxide, Methyl Chloride or Freone 12.

1. By permitting the refrigerant to evaporate at its true boiling point because it is undiluted by oil.
2. By preventing the formation of oil film on the heat transfer surfaces of cooling unit and condenser, lower temperatures, faster heat transfer, and greater capacities are obtained.
3. By keeping the oil in the compressor where it belongs, the separator assures proper and continuous lubrication of working parts. Seal leaks, scored cylinders and burned out bearings are eliminated.

• • •

IMPORTANT: While oil separators are highly desirable on normal temperature units, they are a "must" for the efficient operation of low temperature equipment.

★ APPLICATIONS ★

Low Temperature Food Storage • Quick Freezing Applications
Low Temperature Industrial Coolers • Rivet Coolers • Steel Aging Cabinets

Dealers Write our sales department today for special booklet and specification bulletin covering the complete line of "Oilrite" oil separators.

TEMPRITE PRODUCTS CORP.
Originators of Instantaneous Liquid Cooling Devices
43 PIQUETTE AVENUE • • • DETROIT, MICHIGAN

Air Conditioning & REFRIGERATION NEWS

Trade Mark registered U. S. Patent Office;
Established 1926 and registered as
Electric Refrigeration News

F. M. COCKRELL, *Founder*

Published Every Monday by
BUSINESS NEWS PUBLISHING CO.
5229 Cass Ave., Detroit, Mich.
Telephone Columbia 4242

Subscription Rates
U. S. and Possessions, Canada, and all countries in the Pan-American Postal Union: $4.00 per year; 2 years for $7.00. All other foreign countries: $6.00 per year. Single copy price, 20 cents. Ten or more copies, 15 cents each; 50 or more copies, 10 cents each. Send remittance with order.

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VOLUME 39, NO. 16, SERIAL NO. 752
AUGUST 16, 1943
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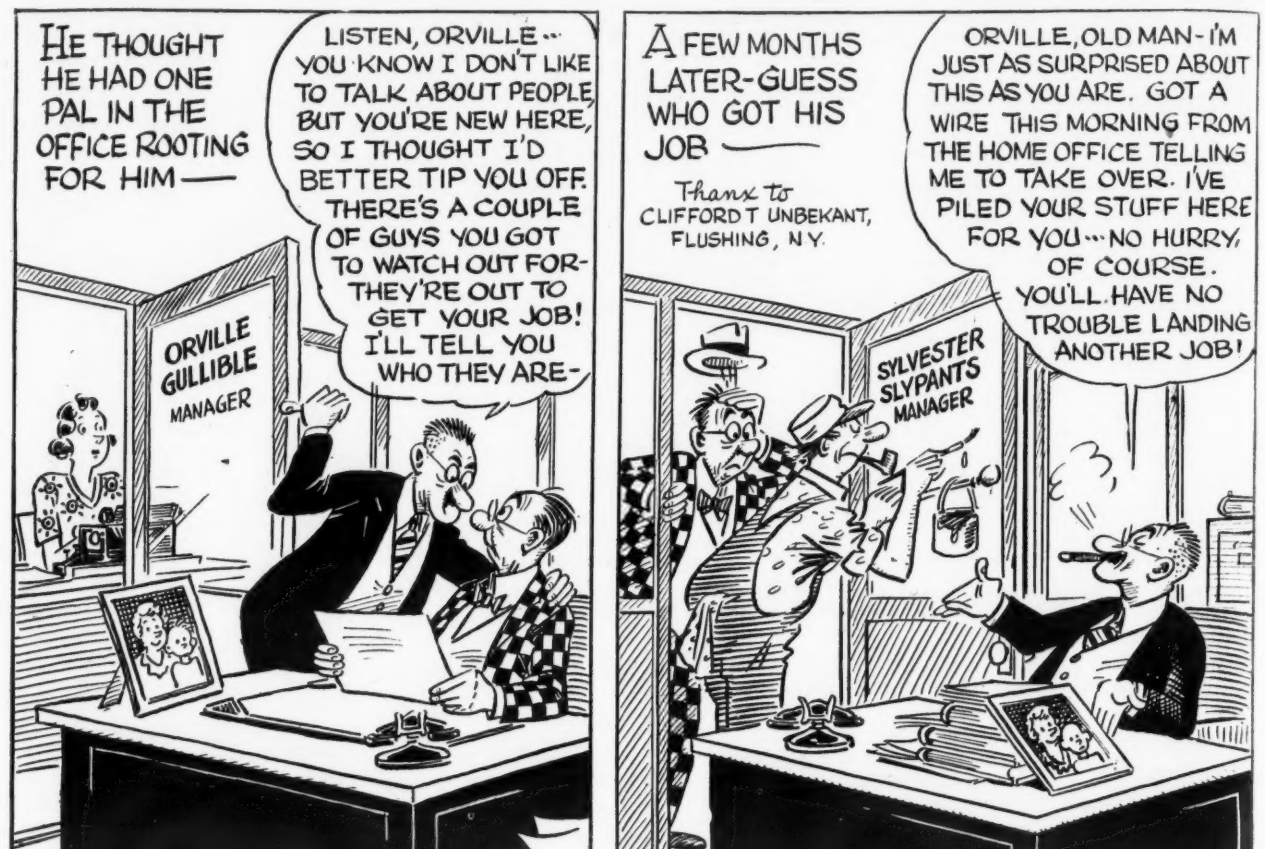
They'll Do It Every Time

By Jimmy Hatlo


HE THOUGHT HE HAD ONE PAL IN THE OFFICE ROOTING FOR HIM—
LISTEN, ORVILLE— YOU KNOW I DON'T LIKE TO TALK ABOUT PEOPLE, BUT YOU'RE NEW HERE, SO I THOUGHT I'D BETTER TIP YOU OFF. THERE'S A COUPLE OF GUYS YOU GOT TO WATCH OUT FOR— THEY'RE OUT TO GET YOUR JOB! I'LL TELL YOU WHO THEY ARE—
ORVILLE GULLIBLE MANAGER
4-19
Copr 1943, King Features Syndicate, Inc., World rights reserved.
A FEW MONTHS LATER—GUESS WHO GOT HIS JOB—
Thanx to CLIFFORD T UNBEKANT, FLUSHING, N.Y.
ORVILLE, OLD MAN—I'M JUST AS SURPRISED ABOUT THIS AS YOU ARE. GOT A WIRE THIS MORNING FROM THE HOME OFFICE TELLING ME TO TAKE OVER. I'VE PILED YOUR STUFF HERE FOR YOU—NO HURRY, OF COURSE. YOU'LL HAVE NO TROUBLE LANDING ANOTHER JOB!
SYLVESTER SLYPANTS MANAGER

Jobbers Groups Promote Progress

NOBODY can estimate the dollars-and-cents worth of the National Refrigeration Supply Jobbers Association to the industry as a whole, but anyone in his right mind would admit that it is tremendous.

Since its inception many years ago it has steadily improved relations between supplier and customer, between manufacturer and user, between salesman and engineer, and between the government and the industry.

Membership in this group marks a jobber as honest, reliable, and trustworthy, and its existence has undoubtedly saved manufacturers thousands upon thousands of dollars in the dimunition of risks. Even more important has been its promotion of stability within the industry.

Another and somewhat similar association, the Appliance Parts Jobbers Association, is now attempting to do in the washing machine field what the NRSJA has done in the refrigeration field. Inasmuch as many refrigeration parts jobbers are also in the washing machine parts field, there is some parallel in membership.

WASHING MACHINE PARTS IN PARALLEL SITUATION

Present major activity of this group is "to promote the recognition of our industry by the original washing machine manufacturers, and to secure for our members distributorships of original parts more fully."

Some of the washing machine manufacturers are cooperating with this group; others as yet do not appear to be interested.

It's probably none of our business, but in the interests of refrigeration jobber friends who are members of this washing-machine group, we might point out that a similar situation once existed in the refrigeration field. Those who withheld recognition from the parts jobbers were eventually left out on a limb which the jobbers soon sawed off.

Attempting to maintain a monopoly on the supply of repair parts is somewhat like trying to tell people what movies they must attend. Repairmen will patronize the wholesalers who are most convenient and who give them the best service. If these wholesalers can't get "original" parts to meet the demand of their customers, other suppliers of these parts can often be found. At least, that's the experience in the refrigeration industry.

Wilfrid L. Cloutier of Detroit is secretary-treasurer of the APJA. Russell D. Jones of Harrisburg, Pa. is president; Charles E. Sundberg of Chicago is first vice president, and Charles E. Fish of Youngstown, Ohio is second vice president.

On the board of directors are Gordon H. Adler of Detroit, Nedford K. Mason of Columbus, William A. Schwefel of Milwaukee, Louis M. Pearsol of Cleveland, and Carl Ruegg of Omaha.

REPUTATION OF THE MEN INSURES PROGRESS

The high character and reputation of the principals and membership are a guarantee of the organization's integrity. These men can and do supply needed service in their territories. It's difficult to see what can be lost by cooperating with them, and easy to see what can be gained.

Independent jobbers have contributed much to the progress and vitality of the refrigeration industry. They can do much for the washing machine business, as well.

LETTERS

IMPORTANCE TO NATION OF SERVICE MEN

Air Conditioning Training Corp.
Youngstown, Ohio

Editor:

At the beginning of the war there were approximately 17 million electric refrigerators in the homes of this country.

Our experience has indicated that a refrigerator requires the attention of a capable serviceman approximately once a year. Of course some require more service than this—others less, but the average is about one call per year per machine.

Therefore 17 million service calls per year were required to keep the domestic refrigerators in our homes in operation.

Due to food scarcity, rationing, etc., electric refrigeration is more important to the householder today than ever before in history, but the available manpower for doing this important job has been reduced to at least 50% of what it was before the war.

Moreover, prior to "Pearl Harbor" we were retiring a quarter of a million domestic electric refrigerators annually, by reason of obsolescence. The "older jobs," which naturally caused the higher percentage of service calls, could be taken off the market in exchange for newer machines which caused less grief.

Right now we are attempting to keep 17 million refrigerators (comparatively few of which are less than two years old) in running condition with one-half of the servicemen who originally did the job. And the older machines, those trouble makers for the serviceman which could heretofore have been taken off the market, are still there causing service trouble because there are no new refrigerators to replace them.

It is also well to remember that when we speak of the 17 million we are discounting entirely the commercial and industrial installations of which there are hundreds of thousands in use—highly important installations which MUST be kept in good operating condition.

Our school has been training men for this industry for the past nine years by a combination of home-study and practical shop work. Never in our history has there been such a condition—such an enormous demand for refrigeration technicians and so few capable men available to fill jobs.

It is easy to see what is happening. Fully trained and partially trained refrigeration men have been inducted into the armed forces. Capable refrigeration technicians have been lured into war plants by higher salaries or the possibility of improved draft status.

For many months, we have realized the growing seriousness of this exodus of skilled workmen from this field. We have urged our undergraduates to devote every available hour to their studies so as to graduate at earlier dates. But the new crop of graduates still comes along entirely too slowly to materially affect the deficiency.

As far back as January of this year someone in Washington was cognizant of the situation as indicated by War Manpower Bulletin No. 42 which gave deferment rights to refrigeration repairman. How closely this ruling was followed by local draft boards cannot be stated; neither can I say if it helped the situation any. To appropriate one of your own headlines, maybe the "Pardon Came Too Late."

Realizing the vast refrigeration problem faced by our armed services it is understandable that the Army, Navy and Marines were seeking relief. At least one new refrigeration school was organized in the mid-west for the purpose of training men for the Army. Also the situation was sufficiently serious to cause the Marine Corps to set up classes at one of its bases for the training of refrigeration men.

The solution of the problem is not simple. But it is high time that a real effort is made to find the solution. Maybe the answer could come out of Washington, but I am inclined to believe that it should originate in the industry and then the necessary relief sought in Washington.

The following may represent a starting point:

(1) Train men in the existing schools just as rapidly as is consistent with satisfactory training.

(2) Obtain proper application of War Manpower Bulletin No. 42 (deferment of refrigeration technicians from military service) and thus build up our civilian refrigeration manpower.

(3) Have sufficiently high ceilings on service charges to justify salaries for refrigeration technicians which would be comparable to wages paid in war plants. The public has a sufficiently high income to stand such increases in service costs at this time.

(4) Let it be understood and publicized that a refrigeration man can be more patriotic working at his HIGHEST CAPABILITY as a refrigeration technician (thus maintaining civilian health and moral) than he would be, working BELOW his fullest capabilities, in a war plant.

A general refrigeration breakdown would be a calamity. At the pace we are going we are headed for a general breakdown. When that point is reached it is not beyond the realm of possibility that epidemics could follow. Illness caused by improper refrigeration could result in loss of production "man-hours" for in excess of anything we have seen to date—even including strikes.

This is certainly no time to have chaos in the kitchen.

Phil Murray
Director of Student Service.

NEED FOR NEWS

Glenn S. King
Advertising
Smyrna, Del.

Editor:

At the direction of Mr. J. E. Wilson, Jr., of Wilson Cabinet Co., it has been my pleasure as advertising agent to formulate Wilson Sales Bulletin No. 15, which deals with the merits of your publication.

I am directing the enclosed copy of the Bulletin to your attention to show you in what high esteem you are held both by Mr. Wilson personally and the personnel of the Wilson Cabinet Co.

Glenn S. King

* * *

Wilson Cabinet Co.
Smyrna, Del.

To: All Wilson Dealers
Concerning: Government Regulations as reported by AIR CONDITIONING & REFRIGERATION NEWS.

During this period of rigid control of all phases of our business operations, we find that the publication which we can count on to give us prompt and reliable information as to government regulations is the AIR CONDITIONING & REFRIGERATION NEWS.

Weekly reading of the News not only gives the information which you need to comply with WPB regulations but also gives an up-to-the-minute report of conditions and trends in the industry.

We think so highly of the AIR CONDITIONING & REFRIGERATION NEWS as an indispensable source of information that we are making a special effort to see that everyone who is in any way connected with our organization has a copy of the NEWS each week, or has access to a copy.

If you are not now a reader of the NEWS, we wish you would give us the privilege of introducing it to you.

So strongly do we feel on the subject that we are willing to pay one year's subscription for you to get you started. Just send us a line saying you wish us to have the AIR CONDITIONING & REFRIGERATION NEWS sent to you and we will do the rest.

Your reading of the NEWS will pay us all dividends.

Inside Dope

By George F. Taubeneck

(Concluded from Page 1, Column 1)

war-increased populations need especial attention. Another is that wholesalers and retailers will need all the help they can get next year, especially through increased production of "small" items which use comparatively little critical material.

A third premise is that when it becomes possible to resume limited production of heavy consumer durable goods, such as automobiles and refrigerators, competitive relationships should be preserved or protected, so that no one manufacturer gets an unwarranted jump on others.

What's Coming

Out of this list of 100,000 items the Office of Civilian Requirements hopes to winnow three or four thousand of the most necessary items requiring the least critical materials, and plug for their increased production.

We haven't any idea how this list will finally turn out, but we hear that some of the following items have good chances:

Lighting equipment of all kinds, from table lamps and bulbs to flashlights; batteries; ice refrigerators; bedsprings; simplified wooden furniture; kitchen cutlery; razors and blades; plated silverware; clocks; cooking utensils; stoves; nails and tacks; pins; buttons; zippers; hooks-and-eyes; needles; traps for animals; musical instruments; pens and pencils; umbrellas; infant equipment; office supplies; collapsible tubes; boilers and radiators; water heaters and tanks; surgical and dental instruments; everything for hospitals; brushes, brooms, mops, and carpet sweepers.

Maybe that will give you an idea. It is the hope of the OCR that increased production of items like these will enable many wholesalers and retailers, who are flexible enough to diversify their lines in accordance, to stay in business through the critical first three quarters of next year.

Heavy Durables

Some talk is heard of limited production of automobiles during the third quarter of 1944. If such is permitted, refrigerators ought to be produced by then, too. And washing machines.

Refrigerators will be badly needed much sooner, in fact.

Goals for OCR

Mr. Whiteside's new policy carries these provisions:

1. Insure that all minimum essential civilian requirements are met and in addition that all national resources above that level, which cannot be employed effectively to meet military and foreign policy needs, are utilized to supply civilians.

2. Supplies for civilians will be considered to be at the minimum essential level for any product or service when further reduction would impair civilian health, morale or working efficiency of the national economic structure beyond what is justified by the prospective gain to the war through release of resources.

3. Adequate repair parts, replacement parts and labor must be made available to maintain existing essential equipment in the hands of civilians in operating condition.

4. The distributive and service trades must be maintained to the extent necessary to make essential goods and services available to civilians when and where needed.

5. The needs of the families, infants and children, workers with special requirements and rapidly growing communities will receive particular consideration.

6. Damage to the basic economic and social structure will be avoided to the extent consistent with prosecution of the war and the satisfaction of essential civilian requirements. Full utilization will be made of small business.

7. Every effort will be made to economize the use of resources and to conserve the goods now in civilian hands.

8. Civilians will not be called upon to make unnecessary sacrifices.

9. Public information will be furnished promptly to enable the civilian population to understand the reasons for government decisions limiting the supply of civilian goods and services.

Mr. Whiteside believes the principal problems facing OCR in the achievement of these objectives as:

Shortage of manpower, particularly in service trades.

Inadequate distribution of scarce goods.

Lack of materials, particularly metals, for civilian manufacture.

Truth in a Laugh

O. J. Willoughby, editor and publisher of "Refrigeration," Atlanta ice journal, is a southern gentleman of whom we are quite fond. In a recent issue he came out with one of the funniest—and truest—thoughts on inflation we've seen anywhere. Says O. J.;

"It's wonderful how simple fundamental economics can be made to appear when clever politicians really set the words to a crooner's tune.

"Take this terrible thing they call inflation . . . and it IS a terrible thing. It, according to Washington bureaucrats, is caused by a lot of people having a lot more to spend than there are things for which to spend it.

"Bureaucratic prescription to prevent . . . if not cure . . . inflation appears, therefore, to simply be: continue to increase the income of the government-favored, war-benefitted whose pockets burn if there is a dime left over from one pay day to the next, and, at the same time keep prices down even if it takes government subsidies.

"In other words, it seems that if drinking causes some people to go on a spree and thus endanger the whole people, the logical cure is to tax others so as to increase the supply of liquor for those who can't handle it.

"It's simply simple . . woefully simple."

National Publicity

The Reader's Digest for June had a squib telling of the hobby of a "San Francisco businessman," Clarence F. Pratt, who distributes very young redwood trees to his friends. Mr. Pratt, the thumbnail sketch explains, digs the seedlings himself, nurses them along in small tins, and takes them with him to dispense on business trips. Anyone writing in to him gets one by mail, pospaid.

Most of you no doubt recognized our old friend, "Sandy" Pratt, of California Refrigerator Co. And many of you have received one or more of the trees.

We received an interesting postscript the other day in the form of a 4-page printed leaflet from Sandy. This was his form of acknowledgement and thanks for the letters he has reecived—more than 1,600 of them, he reveals, with an average of 25 a day still coming in.

His great regret is that he is able to give less and less time to his hobby now. Between Uncle Sam's need for refrigeration products and his own part in serving the Western Defense Area, there isn't much left over. It's not a shortage of redwoods, he's glad to say, but only that the supplies of labor, transportation, and cardboard containers for shipping are harder to come by now.

Even so, he will try to fill single orders from those who will cooperate on shipping expenses by sending 65 cents with their orders. Which is fair enough, we think. The baby redwoods he digs and carefully packs are usually two years old and about 18 inches tall. And he has sent thousands of them, to people all over the country, without ever asking a wooden nickel.

Strafers Foiled

The ears of Mr. Arthur Elphic, butcher, somewhere on the South-East coast of England, picked up the familiar sound of low-flying Focke-Wulf 190's. For shelter he dived into his meat refrigerator. He came out unscathed after the attack into well-damaged surroundings.

Although Mr. Elphic is not the first on record to take refuge in his meat room, the incident rests as testimony to the dual role refrigerators are playing in war zones.

POLARTRON

PRESSURE AND TEMPERATURE CONTROLS

Extra features equivalent to 32 or more *Special* models are STANDARD in every M-H Polartron.

MINNEAPOLIS-HONEYWELL REGULATOR CO.

Refrigeration Controls and Control Systems

ELIMINATE THIS MANPOWER LOSS

with properly cooled DRINKING WATER

Thirst hastens fatigue — and fatigue robs workers of energy, reduces accuracy, lowers morale. Guard against this drag on manpower with conveniently placed OASIS Electric Water Coolers. Medical authorities emphasize the importance of fresh, sanitary drinking water — and OASIS Coolers provide water at its invigorating best! OASIS Electric Water Coolers are the product of 20 years of progressive leadership by pioneers in the field . . . produced in one of the most fully equipped production-line plants of its kind.

WRITE FOR DETAILS TODAY.

The EBCO Manufacturing Co.
401 W. Town St., Columbus 3, O.

EBCO Electric Water Coolers

The War...And You!

Friend—don't think this war doesn't affect you. It does. It's pushing the world twenty years ahead of time; stimulating the development of devices which, after the war, will change materially the way you now live. Your life will be fuller then, more exciting, more comfortable. And just as Weatherhead has helped build products like the automobile, the airplane and the refrigerator in the past, in tomorrow's world we will be building these new products now denied us by the war.

Look Ahead with Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND, OHIO

Manufacturers of vital parts for the automotive, aviation, refrigeration and other key industries.

Plants: Cleveland, Columbia City, Ind., Los Angeles
Canada—St. Thomas, Ontario

Text of Order L-23-c Which Permits Production of New Domestic Ranges

PART 3288—PLUMBING AND HEATING EQUIPMENT*

[Supplementary General Limitation Order L-23-c as Amended July 29, 1943]

DOMESTIC COOKING APPLIANCES AND DOMESTIC HEATING STOVES

Section 1028.4 **Supplementary General Limitation Order No. L-23-c** is hereby amended to read as follows:

§3288.66* **Supplementary General Limitation Order No. L-23-c**—(a) **Definitions.** For the purposes of this order:

(1) "Domestic cooking appliances" means gas ranges, cook stoves, and hot plates for household use; coal and wood ranges and cook stoves (including laundry stoves except water jacketed and permanently built-in coil types) for household use; fuel oil ranges, cook stoves, table stoves and hot plates for household use; combination ranges (including dual oven types, ranges with built-in kitchen heaters, and bungalow types) except electrical, for household use; camp and trailer stoves for cooking purposes; fuel oil conversion range burners; and drum and portable ovens.

(2) "Domestic heating stoves" means any above the floor devices (except electric) for the direct heating of the space in and adjacent to that in which the device is located, designed for use without heat distribution pipes or ducts, and includes, but is not limited to, circulating, radiant and portable heaters and trailer and caboose stoves. Domestic heating stoves shall not include floor or wall furnaces.

(3) "New domestic cooking appliances and domestic heating stoves" means any such appliances or stoves which have never been used by an ultimate consumer.

(4) "Accessories" means aprons, thermostats, high closets, high shelves, clocks, broiler pans other than iron or steel, storage compartments, thermometers, and any other instruments, attachments, or appurtenances (except top-burner lighters) for domestic cooking appliances not essential to any of the following three major cooking operations: top burner cooking, oven baking, and oven broiling.

(5) "Steel coal or wood range or cook stove" means a coal or wood range or cook stove in which the total weight of steel is 20% or more of the total weight of metal of the unit.

(6) "Fuel oil" means any liquid petroleum product commonly known as fuel oil including Numbers 1, 2, 3, 4, 5, and 6, Bunker C, Diesel oil, kerosene, range oil, gas oil or any other liquid petroleum product used for the same purposes as the above designated grades.

(7) "Base period" means the 12 months period from July 1, 1940 to June 30, 1941.

(8) "Factory sales value" means the aggregate value of shipments of domestic cooking appliances and domestic heating stoves.

(9) "Class A producers" means those manufacturers of domestic cooking appliances and/or domestic heating stoves whose factory sales value for the 12 months ending June 30, 1941, including both domestic sales and exports, was $2,000,000 or more.

(10) "Class B producers" means those manufacturers of domestic cooking appliances and/or domestic heating stoves whose factory sales value for the 12 months ending June 30, 1941, including both domestic sales and exports, was less than $2,000,000 and who are located in Labor Area Group I, as defined from time to time by the War Manpower Commission.

(11) "Class C producers" means those manufacturers of domestic cooking appliances and/or domestic heating stoves whose factory sales value for the 12 months ending June 30, 1941, including both domestic sales and exports, was less than $2,000,000 and who are not located in Labor Area Group I, as defined from time to time by the War Manpower Commission.

(12) Producer" means any person who during the base period manufactured, fabricated or assembled any domestic cooking appliances or domestic heating stoves.

(b) **General restrictions.** (1) No person except a producer shall manufacture, fabricate or assemble any domestic cooking appliances or any domestic heating stoves.

(2) No person shall manufacture, fabricate or assemble any domestic cooking appliance or domestic heating stove except from materials in inventory on July 29, 1943, or the acquisition and use of which is specifically authorized from time to time by the War Production Board under the Controlled Materials Plan or otherwise. In authorizing the manufacture of domestic cooking appliances and domestic heating stoves the War Production Board will, in general, authorize Class C producers to produce the types they normally fabricate up to 100% of their base period unit production before authorizing the manufacture of any of the same types by Class A and Class B producers; **Provided, however,** That during the period from July 1, 1943 to June 30, 1944 the total number of units of each type authorized for production by all producers will not exceed the percentages of total unit production specified in Schedule A attached.

(3) No producer shall manufacture, fabricate or assemble any domestic cooking appliances (other than combination ranges) or domestic heating stoves, except in those fuel types which he manufactured, fabricated or assembled during the base period; but this provision shall not apply to such appliances or stoves manufactured, fabricated or assembled for delivery to or for the account of the Army, Navy, Maritime Commission, or War Shipping Administration of the United States, or for use in a building or project authorized under Preference Rating Order P-55-b or rated under Preference Rating Order P-55 or any Order in the P-19 series.

(4) No producer shall manufacture, fabricate, or assemble any domestic cooking appliances, except those listed in Schedule B attached, and then only in accordance with the maximum weights, numbers of models or sizes and description of types set forth in such table; and no person shall manufacture, fabricate or assemble any accessories or incorporate them into any domestic cooking appliances.

(5) No person shall manufacture, fabricate or assemble any domestic heating stoves except those listed in Schedule B attached, and then only in accordance with the numbers of models and B.t.u. capacities set forth therein.

(6) No producer shall

(i) Use any iron or steel in the production of cover tops or lids to cover the cooking surfaces of domestic cooking appliances when not in use; or

(ii) Produce or assemble any domestic cooking appliances equipped with such cover tops or lids containing any iron or steel; or

(iii) Use any "bright work," "bright finish," metal finish, or trim containing copper, nickel, chrome, or aluminum or other alloy in the production of domestic cooking appliances or domestic heating stoves; or

(iv) Use any alloy steel in the production of domestic cooking appliances or domestic heating stoves except for valves.

(7) No producer shall substitute steel for cast iron in the manufacture, fabrication or assembly of any model of domestic cooking appliance or domestic heating stove which he manufactured, fabricated or assembled prior to July 29, 1943.

(8) No producer shall manufacture, fabricate or assemble any steel coal or wood range or cook stove who did not manufacture, fabricate or assemble such ranges or stoves during the period July 1, 1940 to July 29, 1943.

(c) **Exceptions.** (1) Nothing in paragraph (b) (4) or (b) (5) shall restrict the manufacture, fabrication or assembly of trailer or caboose stoves.

(2) Domestic cooking appliances or domestic heating stoves which do not conform to the provisions of paragraph (b) (4) or (b) (5) may be manufactured, fabricated or assembled to specifications for the account of or for delivery to the Army, Navy, Maritime Commission or War Shipping Administration of the United States, or to specifications for use in a building or project authorized under Preference Rating Order P-55-b or rated under Preference Rating Order P-55, or any Order in the P-19 series: **Provided,** That prior request be made to the War Production Board, Plumbing and Heating Division, Washington 25, D. C., by letter, and approved in writing.

(3) Notwithstanding any restrictions in this order, concerning use of metals, accessories, weight per unit, numbers of models, or sizes or types, until October 27, 1943, any producer may manufacture, fabricate or assemble any dometsic cooking appliance or any domestic heating stove provided that he has in his inventory, on July 29, 1943, fabricated iron or steel parts of any such appliance or stove which total at least 50% of the total weight of iron and steel which such appliance or stove would contain when completely assembled.

(d) **Sales restricted to rationed or rated transactions.** On and after September 1, 1943 no person may sell or deliver a new domestic cooking appliance or a new domestic heating stove unless the transaction either (1) is rated A-10 or better or (2) is made pursuant to a rationing order of the Office of Price Administration.

(e) **Repair aprts.** Nothing in this order shall prohibit or restrict the manufacture or shipment of repair parts for domestic cooking appliances or domestic heating stoves.

(f) **Reports.** Each producer shall execute and file with the War Production Board, such reports as the War Production Board may specify from time to time, subject to the approval of the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

(g) **Applicability of priorities regulations.** All persons and transactions affected by this order are subject to all applicable provisions of the priorities regulations of the War Production Board, as amended from time to time.

(h) **Applicability of other orders.** Insofar as any other orders heretofore or hereafter issued by the War Production Board limits the use of any material in the production of domestic cooking appliances or domestic heating stoves to a greater extent than the restrictions imposed by this order, the restrictions of such other order shall govern, unless otherwise specified therein.

(i) **Appeals.** Any appeal from the provisions of this order shall be filed on Form WPB-1477 (formerly PD-500) with the field office of the War Production Board for the district in which is located the plant or branch of the appellant to which the appeal relates.

(j) **Communications.** All communications concerning this order, except appeals, shall, unless otherwise directed, be addressed to the War Production Board, Plumbing and Heating Division, Washington, D. C., Ref.: L-23-c.

(k) **Violations.** Any person who willfully violates any provision of this order, or who, in connection with this order, willfully conceals a material fact or furnishes false information to any department or agency of the United States is guilty of a crime, and upon conviction may be punished by fine or imprisonment. In addition, any such person may be prohibited from making or obtaining further deliveries of, or from processing or using, material under priority control and may be deprived of priorities assistance.

Issued this 29th day of July, 1943.

WAR PRODUCTION BOARD,
By J. Joseph Whelan,
Recording Secretary.

SCHEDULE A

	Percentage of total unit production by all producers in the base period (July 1, 1940 to June 30, 1941)
Domestic cooking appliances:	
1. Gas ranges and cook stoves	40
2. Combination, bungalow and kitchen heater ranges	40
3. Coal and wood ranges and cook stoves	100
4. Fuel oil ranges and cook stoves	40
5. Coal and wood laundry stoves	100
6. Gas hot plates	75
7. Portable and drum ovens	75
Domestic heating stoves:	
1. Gas fired heaters	75
2. Oil fired heaters	40
3. Coal and wood heaters	100

* * *

SCHEDULE B

Appliance	Maximum weight of iron and steel permitted in finished product (pounds)	Maximum number of models or sizes permitted	Types
1. Gas ranges	100	2	One to have 3 top burners, broiler optional. One to have 4 top burners with broiler and bake oven.
2. Gas hot plates	15 iron (no steel permitted)	3	1-1 burner, 1-2 burner, 1-3 burner.
3. Coal or wood ranges and cook stoves.	Average unit weight of any producer's production in any calendar quarter not to exceed 85% of such average unit weight during the base period.	8	2 steel ranges or cook stoves. 3 cast iron ranges. 3 cast iron cook stoves (At least one steel range or cook stove one cast iron range and one cast iron cookstove manufactured by any producer shall be the lightest of each of his line).
4. Gas and coal or wood combination ranges.	Lightest in producer's line from July 1, 1940 to....., 1943.	1	
5. Bungalow or kitchen heater range (gas and coal or wood).	350	1	
6. Fuel oil ranges	90	2	1-3 top burner range with bake oven. 1-2 top burner range with bake oven.
7. Fuel oil stoves	45	2	1-2 burner stove. 1-3 burner stove.
8. Fuel oil table stoves	18	3	1-1 burner stove. 1-2 burner stove. 1-3 burner stove.
9. Laundry stoves		6	4-2 hole stoves. 2-4 hole stoves. (1-2 hole stove and 1-4 hole stove manufactured by any producer shall be the lightest of each of his line.
10. Portable ovens		2	1 single oven. 1 double oven.
11. Drum ovens		1	

Stoves	Number of models or sizes permitted	Maximum of models or sizes permitted in B.t.u. capacities per hour
1. Gas Radiant	10	2—12,000 or less input. 2—12,001 to 20,000 input. 2—20,001 to 30,000 input. 2—30,001 to 45,000 input. 2—over 45,000 input.
2. Gas circulating	6	2—30,000 or less input. 2—30,001 to 50,000 input. 2—over 50,000 input.
3. Fuel oil portable (bail type)		
4. Fuel oil circulating	2	2—30,000 or less output.
5. Cast iron or steel coal	10	
6. Sheet steel wood stoves	6	

[F. R. Doc. 43—12283; Filed, July 29, 1943; 11:16 a.m.]

*Formerly Part 1028, § 1028.4.

SANTOCEL PROVES MOST EFFICIENT INSULATOR KNOWN

New Form of Matter Has Thermal Conductivity 15% Lower than "Still Air"

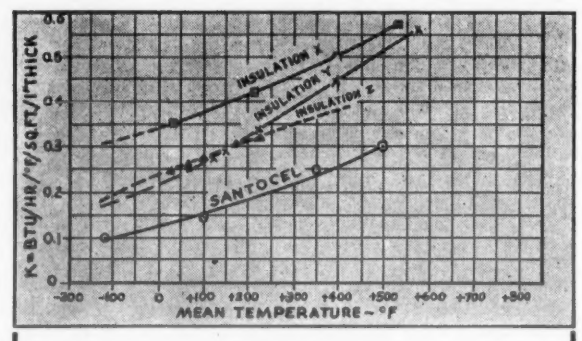
With a K factor of 0.14 at 75° F. mean temperature, Santocel has proved itself to be the most efficient low temperature insulating material ever known — even more efficient than "still air," which physicists formerly believed to be the best insulator theoretically possible.

Santocel, or silica aerogel, is matter in a new and wholly unique form with a structure so minute that to date it has been impossible to obtain a clear picture of it even with the electron microscope. As a result of this unique cellular structure, its thermal conductivity is actually 15% lower than "still air," and it is 1.7 times more resistant to heat flow than other types of fill insulators hitherto used.

Today manufacturers of special low temperature refrigerating units are solving many difficult wartime refrigeration problems with the help of Santocel.

Tomorrow Santocel should open up many other highly interesting new possibilities to the entire refrigeration industry.

Unlike conventional silica gel, Santocel does not pick up significant amounts of water vapor from the air. It is inert and will last indefinitely. Properly installed, very little settling will occur. For samples and full technical details, inquire: Monsanto Chemical Company, Merrimac Division, Everett Station, Boston, Massachusetts.



THESE CURVES TELL THE STORY

These curves show K factor plotted against mean temperature for three common insulating materials and Santocel. Data was taken from the International Critical Tables. Since points given were not sufficient to cover a wide range of mean temperature, curves have been extrapolated (in dotted lines) to cover the same range as Santocel.

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Servicing Sealed Units Of Kelvinator Design

Written in collaboration with the service department, Kelvinator division, Nash-Kelvinator Corp.

Electrical Service

The motor used in the Kelvinator sealed reciprocating unit is of the split phase start, induction run type; when running it is a single phase induction motor.

As single phase induction motors are not self-starting, a common method of starting this type of motor is to introduce a second out-of-phase magnetic field in the stator during the starting period. In this motor a starting winding is wound on the stator, shifted out of phase with the main winding. By means of a relay, this starting winding is in the circuit when the motor circuit is closed.

In the following paragraphs, an elaborate procedure for testing sealed units is described, requiring test starting leads, wattmeter and other items of special equipment for electrical testing. While the method described gives the service man an excellent picture of the trouble and enables him to correctly diagnose the complaint, the only equipment actually needed for every-day service is a few simple tools and articles of test equipment.

An accurate, calibrated relay (wired as shown in Fig. 6), a test lamp and cord, a dial thermometer, pocket thermometer, a set of small socket wrenches, pliers and a large and small screw drivers are the only tools ahd articles of test equipment needed to efficiently service the Kelvinator Polarsphere systems.

The simplest way to check any sealed unit when there is doubt as to whether or not a unit failure or an accessory failure exists, is to isolate the compressor with the factory calibrated relay and service cord to see if the compressor will run.

If the compressor runs, changing the unit will not help the situation. Check the electrical circuit, relay, fan motor, light assembly, service cord and thermostat. Be on the lookout for wires with frayed ends, as these will cause short-circuiting.

If the compressor will not run with the calibrated relay, check the line voltage to see that there is not more than a 10% variation from the normal voltage for which the unit is designed. If the voltage is correct and the unit will not run; change the unit. Be very careful in carrying the calibrated relay; it should be protected against shock. Like any other precision instrument, careless handling will ruin its calibration.

If the motor does not start with the original relay or the test relay, discard the idea of relay trouble and check through the circuit from the thermostat. Should all tests prove the thermostat, relay and wiring satisfactory, the trouble is internal and the system should be replaced.

1938 Electrical Service

A combination magnetic relay and thermal overload was used in the 1938 circuit; this is illustrated in Fig. 6-A. A diagram of the complete circuit is shown in Fig. 7; the wiring diagram and terminal connections of this relay are illustrated in Fig. 8.

Starting of the compressor motor is accomplished as follows: (See Fig. 7). When the cooling unit reaches a predetermined temperature, the temperature control switch closes. The starting relay is in series with the main motor winding. The main winding current therefore passes through the relay coil.

The initial rush of current through the main winding energizes the starting relay coil and pulls up the starting relay armature, closing the starting winding contacts. (The copper damping ring shown in Fig. 6-A prevents hard hitting and chattering of the contacts).

The current through the starting winding introduces the second out-of-phase magnetic field in the stator and starts the motor. As the motor speed increases the current is reduced. At a predetermined condition, the main winding current (which is also the current through the starting relay coil) will have dropped to a value below that necessary to hold up the starting relay armature. The armature drops, opening the starting winding contacts. The motor then continues to run as a single phase induction motor.

(To Be Continued)

Wiring Diagrams For 1938 Kelvinator Unit

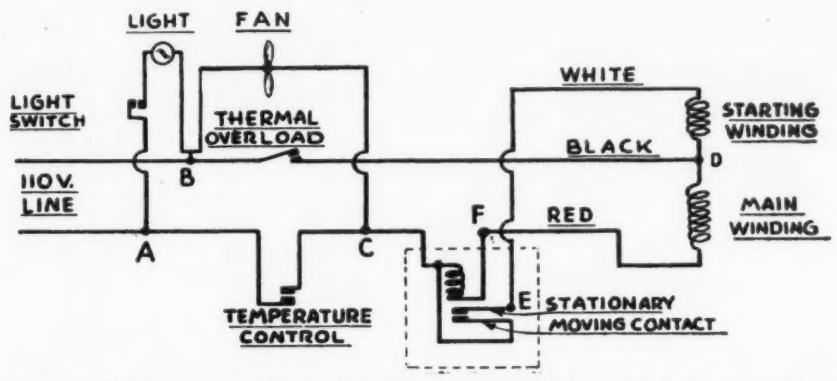


Fig. 7. Wiring diagram of the complete electrical circuit for the 1938-type Kelvinator sealed household refrigerator unit.

Fig. 8. Illustrating the wiring diagram and terminal connections of the relay used in the electrical circuit in the 1938 model.

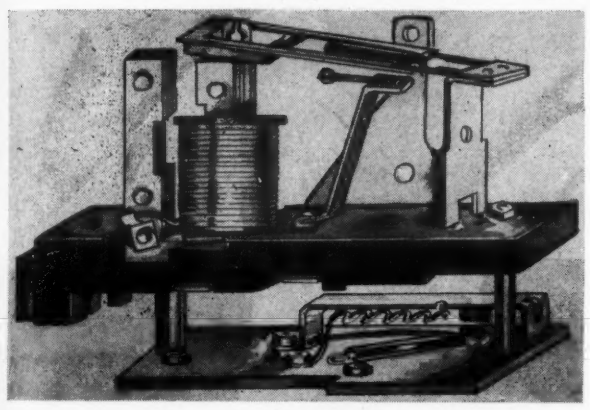


Fig. 6. An accurate, calibrated relay, wired as shown in this illustration, comes in very handy in diagnosing troubles in a sealed-type household refrigerator unit.

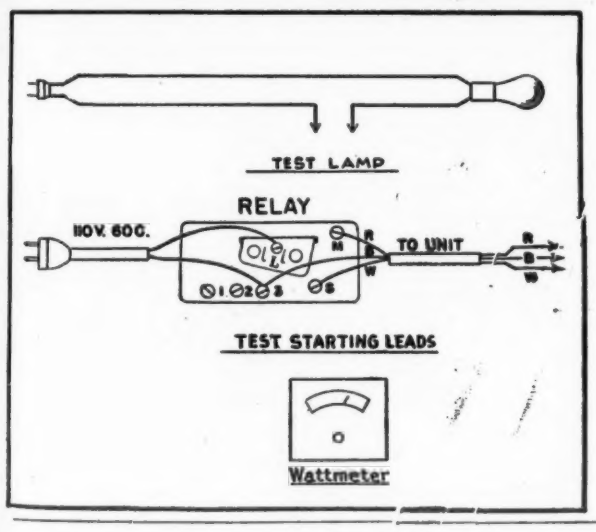
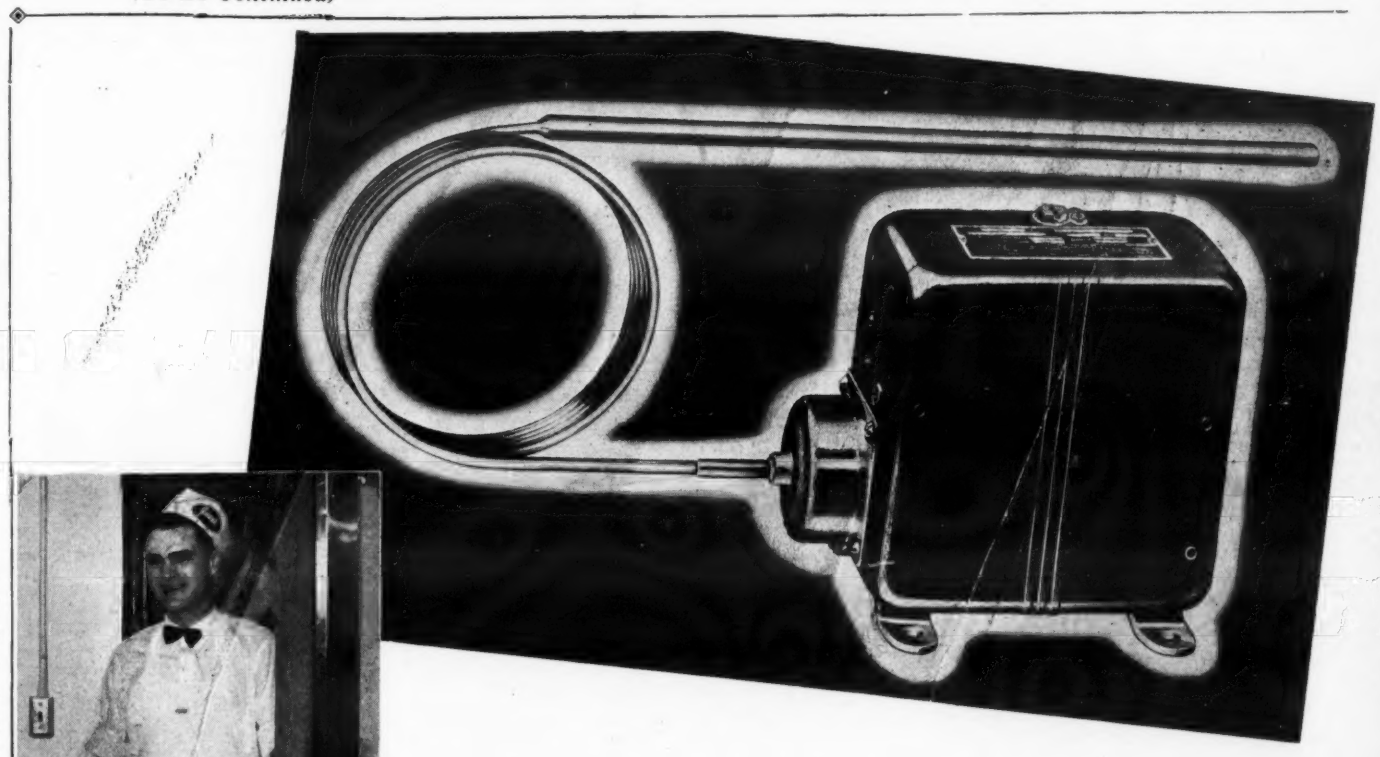
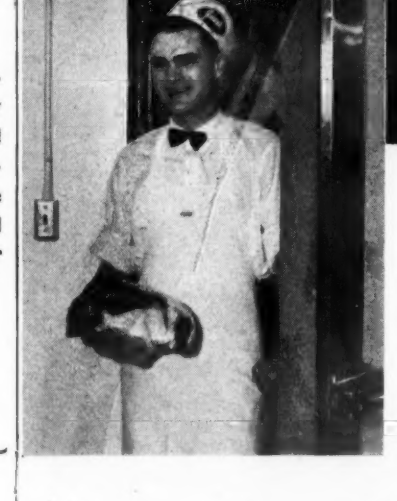


Fig. 6-A. A combination magnetic relay and thermal overload was used in the electrical circuit in the 1938 Kelvinator sealed household refrigerator unit.





Cold Anticipation

HAS AN IMPORTANT WAR-TIME JOB

EVERY DAY the warning comes clearer and stronger: Food is a critical asset. Spoilage cannot be tolerated . . . waste is sabotage!

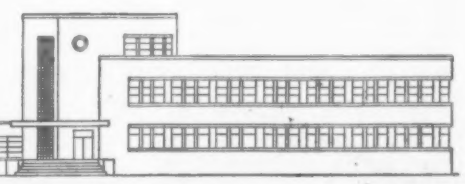
Fresh meat stocks especially must be protected against loss through spoilage . . . against the waste of excessive trimming . . . against shrinkage caused by dehydration.

Here is a job made to order for Avrgaire—Penn's sensational refrigeration control with its valuable "cold anticipation" feature. Avrgaire, through a unique new method of bulb application, establishes an entirely new standard of refrigeration control for walk-in coolers and cases.

Avrgaire holds temperatures within extremely close limits. It automatically defers defrosting when box temperature is raised, as by a heavy load of warm meat, until proper refrigerating temperature is restored. And it maintains correct humidity, avoiding both drying out of meats and excessive sliming, with the consequent loss incurred through necessary trimming.

Under war-time priority regulations Avrgaire is available to food merchants who can show an actual need. Penn can supply these, as well as other temperature and pressure controls, for refrigeration and air conditioning under the established rules. Write for complete information. *Penn Electric Switch Co., Goshen, Indiana.*

PENN



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For Positive Detection of Refrigerant Gas Leaks!

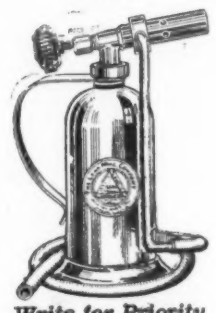
THE LENK Halide Detector

For the refrigeration engineer and service man!

Immediately locates leaks of the commonly used refrigerants such as: sulphur, methyl, carrene, F-12, Freon or ethyl chloride.

Of sturdy construction, the LENK detector features: flame-control, shut-off valve, self-cleaning orifice, and non-clogging burner.

The LENK Halide Detector is also an effective Hi-Heat Alcohol Blotorch.



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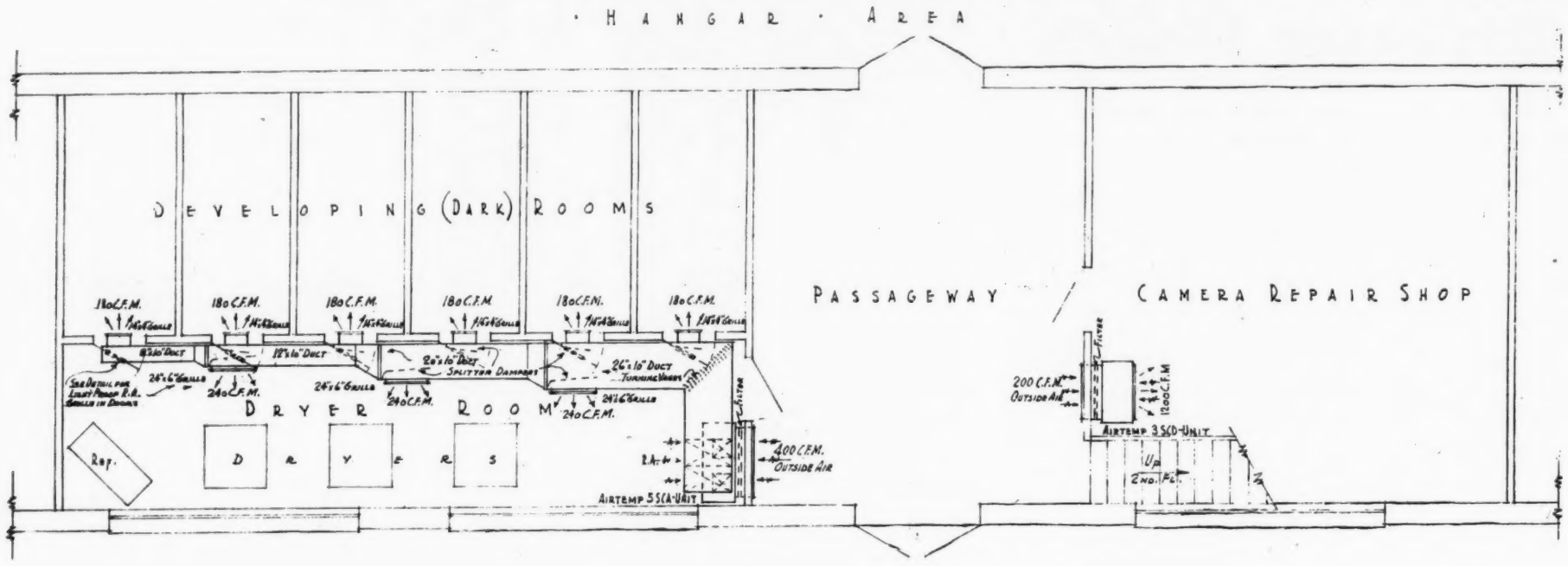
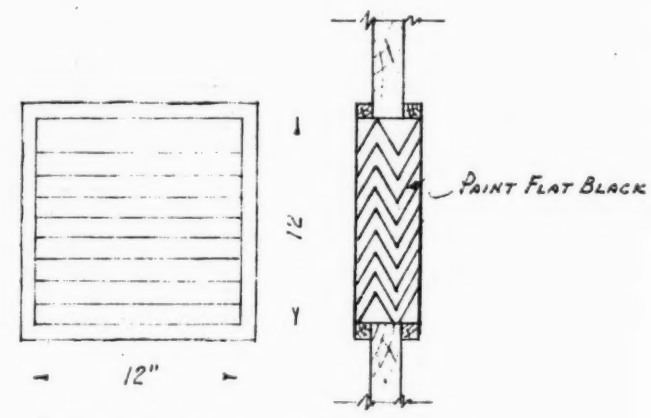


FLOOR PLAN
SCALE 1/4" = 1'-0"

This drawing illustrates how packaged cooling equipment is applied to a military photographic laboratory building to produce temperatures of approximately 80° F., with the relative humidity of about 50% which is satisfactory for this work.



ELEVATION SECTION

DETAIL OF LIGHT PROOF GRILLES IN DOORS
(INSTALL IN EACH DEVELOPING ROOM DOOR)
SCALE 1½" = 1'-0"

Packaged Air Conditioning Units in Army Darkrooms Prove Flexible and Practical

DAYTON, Ohio—Air conditioning has become recognized as necessary equipment in military photographic laboratories and map reproduction rooms. The accompanying pictures and diagrams from Wright Field illustrate the use of packaged cooling units as recently installed by Chrysler Airtemp at various administration centers throughout the Service Commands.

Photographic laboratories and map reproduction rooms require cooling during extreme hot weather for a number of reasons. When films become too warm they are too soft to handle, and will spoil, even when kept in storage.

Solutions used for developing and printing cannot be used when their temperature is too high. Dust and dirt will spoil the best pictures if they touch the negative during processing.

Large photographic organizations, like the Eastman Kodak Co. employ air conditioning in all process rooms, and in buildings where films are made and stored. For the same reason manufacturers of lenses and optical glass find air conditioning necessary for a perfect product.

Similar cooling system layouts have been successfully used in conditioning military hospitals and Link trainer buildings.

Installations have already been completed for buildings in the Fourth and Eighth Service Commands, and plans for conditioning of photographic laboratories are getting under way in other areas.

Photography has become the eyes of the Army during the course of this war. Pictures taken of battle actions on land, sea, and in the air guide the top military commands in making important decisions. Aerial photography has been developed to an exact science, and the reproduction of aerial maps has become of paramount importance. Expert photographers are attached to every branch of the military service and their work is of paramount importance.

One unit may operate on recirculated air, while another, serving a room where fumes and odors are a problem, can be installed with 100% fresh air. Extra filters and humidifying sprays can be installed with any unit where these are indicated as being necessary to the success of the job.

Packaged cooling units can be installed in various sections of a building to serve several different rooms with a minimum of time and expense, or may be moved from one building to another with a minimum of expense.

The photographs on this page, released by the Material Headquarters, U. S. Army Air Forces, Wright Field, show why air conditioning equipment is being purchased by many flying fields for photographic laboratories and map reproduction rooms. Photograph at left shows two aerial cameramen going into action. At right, map reproduction work in progress.

Send For These Bulletins
Bulletins MU-182 and MU-183 contain information that is necessary in the selection of the right motor for the job. They will be sent upon request.

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Wagner maintains 25 branch sales and service offices conveniently located throughout the United States. Each one of these branches is manned by trained field engineers who are ready to assist you in solving your motor application problems.
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6441 Plymouth Avenue, St. Louis, Mo., U. S. A.
ELECTRICAL AND AUTOMOTIVE PRODUCTS
M43-10

Army Refrigeration Problems

By P. B. Reed

Electric Refrigeration and Air Conditioning Division, Servel, Inc.

Proper Handling Of Compressor Oil

Compressor oil has been the subject of much discussion, some of it very interesting, some enlightening and some comes under the general heading of "'taint so." Mainly these discussions are of interest chiefly to design engineers rather than to service or maintenance engineers.

It is quite common for the design engineer to design a certain type of suction or discharge valve, piston ring, bearing, seal or oil pump for a previously selected oil rather than to first design the part and then select the oil. All of these parts are in the same compressor and must use the same oil, so they must be designed for that oil.

As service or maintenance engineers we should be quite willing to let the design engineers tell us what particular oil to use in their compressor and to accept this advice from no one else. Thus it all boils down to USE ONLY THE COMPRESSOR OIL RECOMMENDED BY THE COMPRESSOR MANUFACTURER, AND IF NECESSARY GET THE OIL FROM HIM.

His business is making and selling condensing units and compressors. He is not in the oil business nor is he particularly interested in selling oil evcept to make sure that the user gets the oil that is most suitable for his compressor, nor does it follow that his oil would be suitable for the compressor of another manufacturer even though the compressors seemed similar, were for the same application, and used the same refrigerant.

There are differences in materials, finishes and clearances that call for oils of different characteristics. Moreover, we should not be misled by "just as good," "the same thing," or "a Methyl-Chloride oil," or "a Freon-12 oil." There is no such thing as a "Methyl-Chloride oil" nor "a Freon-12 oil." Many oils might be suitable for one or either of these refrigerants but entirely unsuitable for the compressor or other equipment.

Just because an oil suitable for use with Freon-12 must have a high viscosity, about 300 seconds Saybolt at 100°, it does not necessarily follow that any refrigeration type oil with 300 viscosity is suitable for a certain compressor just because the refrigerant is Freon-12.

Not only does the compressor manufacturer know what oil to use with his compressor and why, but he knows what oils not to use and why, although he obviously can not publicly condemn any make or brand of oil. He can only say, "Use this oil, and no other."

Nor is he apt to be wrong in his selection of an oil, for the successful and dependable operation of his equipment depends on his being right on so important a subject. His reputation is at stake and if the oil is unsuitable he and the user are the ones to suffer, not the supplier of the oil. If your supplier does not have the oil recommended by the manufacturer of the condensing unit, insist that he get it. Accept no substitute and if necessary, send directly to the compressor manufacturer. He will be glad to supply you with his genuine oil or tell you where you can get it.

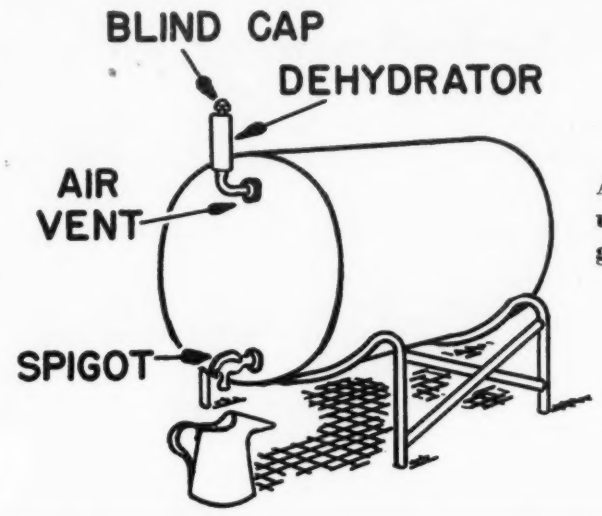
The service and maintenance engineer should use care that the oil is kept clean and dry. Since "water and oil do not mix," it is usually considered that oil is dry and that it does not absorb moisture. The contrary, in fact, is true. Oil is quite hygroscopic, that is, it absorbs moisture readily if it is allowed to come in contact with water or even moist air.

Also, oil has a tendency to "pick up" or dissolve many different substances and is, therefore, quite susceptible to contamination not only by moisture but also by dirt, dust, lint, and particles of matter in the air. The answer to this is, of course, to get clean, dry oil originally and then keep it clean and dry.

Most manufacturers and suppliers keep oil in sealed containers of graduated sizes, 1 quart, 1 gallon, 5 gallon, half-barrel (about 30 gallons) and barrel (about 55 gallons). The small sealed containers are best for service purposes, for the entire quantity can be used at once after the seal is broken.

If the usage is quite heavy, such as in a repair shop, the half-barrel or barrel may be used if provisions are made to keep the oil clean and dry. Do not dip oil from the barrel and do not use an oil pump as the oil is contaminated by drainage back to the barrel and is unnecessarily exposed to the air.

Use a spigot and draw the oil by gravity. See that the measuring cups or other vessels into which the oil is drawn are wiped clean and dry before using. Do not draw any more oil than is immediately needed and if there is any delay in transferring the oil to the compressor crankcase, cover the oil measure.



Air vent will allow use of spigot and of gravity for clean handling of oil.

If oil has been exposed to moisture it may be dried by heating (at atmospheric pressure) to a maximum of 225° F. until the oil is dry, which should not take longer than two or three hours. Overheating or heating too long will cause oxidation and darkening of the oil. To avoid this possibly, heat the oil under a vacuum of 15 inches to 180° F.

Oil will not flow from the barrel unless air is allowed to enter the barrel so an air hole must be provided and most oil barrels are provided with such an air hole. The air that enters the barrel is moisture-laden and must be dried.

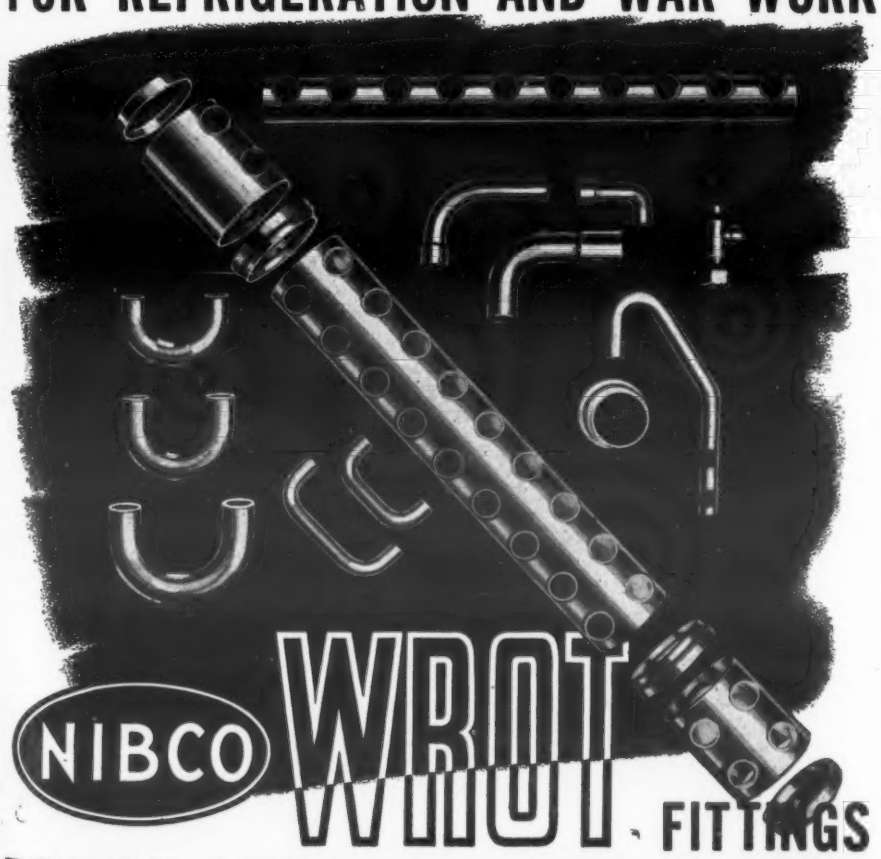
This may be done by fitting a dehydrator to the air hole so that the air entering the barrel must pass through the desiccant (Silica-Gel, Drierite or Activated Alumina) and have the moisture extracted. When oil is not being drawn the open end of the dehydrator must be kept tightly capped—otherwise the desiccant would, in a few hours, absorb all the moisture that it is capable of absorbing and would have no further effect in removing the moisture from the air to the oil barrel.

If you take small quantities of oil out to a job, use a stoppered clean, dry, glass bottle or jug. You can see if they are clean, better than a tin can.

To summarize: 1. Use only compressor oil recommended by name or number by the compressor manufacturer. 2. Buy compressor oil in the smallest practicable sealed containers. 3. Keep the compressor oil carefully so that it is dry and clean when it goes into the compressor.

And, of course, there is no use in taking a lot of care in keeping the oil dry and clean and then putting it in a damp or dirty system. So be sure that the compressor, condensing unit and refrigerating system are clean and dry.

FOR REFRIGERATION AND WAR WORK



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Department of Agriculture's Attitude on Locker Plants Revealed to Senate

Warrington Gives Reasons For Restricting New Plants Now to Smaller Communities

Editor's Note: This third instalment in a series of selected excerpts from the official transcript of hearings held by the Subcommittee on Food Supply of the U. S. Senate Agriculture Committee on the matter of expansion in locker storage plant facilities is of special significance right now.

It is of special significance because it reveals the Department of Agriculture thinking behind the restrictions on present locker plant expansion which limits plants to rural areas and very small communities. There are many active in the locker field who take issue with these restrictions, and everyone connected with the field in any way should be interested in Mr. Warrington's explanation of why these restrictions came into being.

Senators Have Questions On Department's Policy

STATEMENT OF E. S. WARRINGTON, FARM CREDIT ADMINISTRATION, DEPARTMENT OF AGRICULTURE

Mr. Warrington. I have been concerned as an economist in the economics of locker-plant operation and utilization, first as a member of the staff at the University of Minnesota from 1936 to 1939, and since that time as an economist on the staff in the Research Division of the Farm Credit Administration.

I have made studies of plant operation and plant utilization from an economic point of view touching at times on the technical aspects of plant utilization for various products, but my major concern has been the economics of the development generally.

I have during each of the past 4 years conducted a Nation-wide survey of the industry, the type of development, rate structures, services rendered, type of plant operation, and plant size. In addition to that we have made a study of plant investment, operating cost and income in the various types of plant operation.

Senator Aiken. What we would like to hear from you, Mr. Warrington, is what has been done by the Department of Agriculture in planning for this development of the quick-freezing process. Have requests been made for materials or metals by your Department, and in general what is the policy and the attitude of the Department of Agriculture toward the quick-freezing process and the granting of priorities for the construction of facilities? I believe the Department at least recommends, if it does not grant, priorities. Will you proceed and tell us in general what the policy of the Department of Agriculture is?

Mr. Warrington. Mr. Chairman, there are two or three things which have been said in the testimony yesterday, and to some extent this morning, which I thought possibly call for some clarification.

Yesterday morning a question of investment in plants was brought out, the question of how much it cost to construct a plant, and I thought for the record it might be of interest to review just briefly the average investment in plants, in the various types of materials utilized, or phases of the construction project. In a detailed study of plant investment—and this covers plants constructed during the period 1937 to 1939, which will be recognized, of course, as being somewhat lower than they would be at the present time—the investment per locker of capacity in some 20 plants averaged approximately $34 per locker of capacity. Yesterday there was some question about what that was made up of, and I thought it might be of value here to clarify that. In that case it was approximately $1.80 in land per locker capacity.

Senator Bushfield. In what, Mr. Warrington?

Investment Per Locker

Mr. Warrington. In land; $12.50 in building, per locker capacity, $6.66 in installation, $6.90 in refrigeration, $5.15 in lockers and in processing equipment, $2.17 in locker and in processing equipment, $2.17 in office equipment; 11 cents per locker capacity on the average in these plant studies, the total being $34.

Senator Bushfield. What part of that $34 is made up of this critical material that they have to have priorities on?

Mr. Warrington. The major portion of it is in refrigeration and equipment. In other words, approximately $10 out of the $34 would be in refrigeration equipment and equipment used for processing the products before they go into the sharp freezer.

Senator Bushfield. Might I ask Mr. Warrington a question or two? I am interested in this angle of it, Mr. Warrington. Out in my State and in Minnesota, where you came from, the large bulk of the towns are small towns, probably under 1,000 population.

Mr. Warrington. Right.

Senator Bushfield. Do you feel, from your study, that it would be feasible for those small towns to have these locker systems set up in them?

Mr. Warrington. Well, I might say, Senator, that I am very familiar with the operation of the plants in the State of Minnesota. There are now approximately 400 plants operating there. In our studies of plant operation when I was on the staff at the University, our studies indicated that these communities of less than 1,000 people, towns of less than 1,00 people, have around them, as a rule—and that is more particularly true in western part of Minnesota, of course, and South Dakota, Senator Bushfield—a large farm population, a trade territory ranging anywhere from 5 to 10 or 15 miles from which they draw, farms averaging 160 acres, and there would be maybe as many as five or six hundred farm families drawing on these towns.

Now, it depends somewhat on the competitive trade territory as between towns, but the plants out there have been successfully operated. I know of any number of instances where plants with 300 lockers are making a very efficient use of facilities, and they make very efficient use of manpower. In some of the very small communities they have used this branch locker room type of thing where there was no processing, but merely storing, that is, 100 to 125 lockers, down to 50, and I think in one case 40 lockers.

Senator Bushfield. If there are enough people who have access to the lockers, certainly it would warrant their construction. I mean so it was not a financial loss to the operator.

Mr. Warrington. That's right.

Senator Bushfield. I know that in my State, creameries have a locker set up in connection with the creamery in the town, and the farm community adjoining the town uses those lockers.

Mr. Warrington. That's right.

Senator Bushfield. I think it is very important, Mr. Chairman, that this record show that in the small communities where these lockers have not been constructed, they are just as feasible as they are in the larger places.

Senator Aiken. Isn't it true that where they are constructed in connection with a store or a creamery, they already have refrigerating machinery and in that case it is economical to operate smaller units than it would be in a community where the plant was constructed purely as a quick-freezing plant to stand on its own feet with no other connection?

Survey on Rate Structure

Mr. Warrington. The question arises there of efficiency and economy in the utilization of equipment, depending on what type of service they expect to render.

Now, with respect to rate structures, a study made by the State College at Brookings in 1941, of rates in South Dakota—and I have here a publication, Senator, that indicates that out of 84 plants in South Dakota, 91 percent of them charged from $12 to $12.50 for the drawer type lockers, that is, the bottom rows, and 88 percent of them charged $10 for the door-type locker.

Senator Bushfield. That is per year?

Mr. Warrington. Yes; per locker. I suspect the difference of opinion that arose here yesterday resulted from the fact that the service involved more than one locker in the rental.

Senator Bushfield. Well, the lockers that I had particularly in mind at that time were rather large lockers.

Mr. Warrington. That might be; yes.

Senator Bushfield. In fact, the one I was using held the carcass of an elk and a deer at the same time.

Mr. Warrington. Well, you had more than a locker.

There was another point with respect to rationing which I thought possibly might be cleared up, a very fine point, but I believe the Office of Price Administration has taken the position that rationing as it applies to locker plants will permit anyone who produces livestock or produces vegetables or fruits or poultry, to store—no; not poultry, poultry is not rationed yet—to store stocks without giving up points, on the theory that by so doing they would encourage them to produce and satisfy their own needs. I believe the inference was that only farmers—and I am aware of the fact that a good many small town families, although not farmers, produce livestock in their back yards and small lots, but technically they are not farmers.

Senator Bushfield. Is there anything in the regulation now, Mr. Warrington, that would prohibit a farmer from butchering a hog or a beef and putting the carcass in his own locker?

Mr. Warrington. No.

Senator Bushfield. I did not understand it that way.

Mr. Warrington. No; there is not, but according to the testimony yesterday the inference was that someone who was not a farmer could not put it in there.

Senator Bushfield. That's right.

Mr. Warrington. But that is not true. A producer of livestock can put it in.

Now, with respect to the policy of the Department of Agriculture—and I think I should clarify one point—the function, as I understand it, of the Department is one of determining whether or not a particular project is essential or could make a contribution to the food-supply program. We have the very difficult problem of determining the essentiality of this thing. The question whether or not a plant gets a small amount or a large amount of materials actually should be given consideration, but as I say, our function, as it has been described to me, is to determine whether or not a given project would make a contribution to the total food-supply program.

We have outlined and spelled out, insofar as we could on the basis of our limited experience in the field, the requirements which we laid down and the conditions under which the Department would recommend to the War Production Board a particular project. The first of these—I am not going to go through all of them—many of them are minor, but the first one of these is that the proposed plant shall be in a community where the products to be processed and stored are produced in sufficient quantity

(Concluded on Page 19, Column 1)

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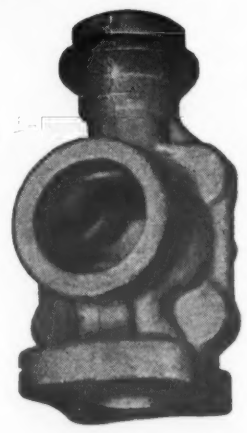

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Warrington Admits 'Population' Limit For Plants Is 'Arbitrary'

(Concluded from Page 18, Column 5)

that the necessary material and manpower may be utilized efficiently. It must also be satisfactorily demonstrated that there is an acute need for such a plant.

One of the bases or backgrounds for that particular point is this: We felt, Mr. Chairman, that, given a limited amount of material, the projects would make their greatest contribution to the war effort in those communities where the product could be produced. We did not have in mind there being produced by every patron, but for a small town family they could buy from a farmer excess products, close enough to him so that they could get it without a lot of labor and exchange organization; that in those circumstances the project would be best.

We have just offhand drawn a line roughly, and I will admit arbitrarily, as a basis for the people in the field to operate on. We will not recemmend a project in a town of over 25,000. That is a difficult thing to lay down, I will admit.

Attitude of Cities and Suburbs

Senator Aiken. What about the suburbs?

Mr. Warrington. That is another problem which we are faced with now. Generally speaking, it has been our feeling that the densely populated suburbs of the larger centers did not produce the product which would be stored. You get into the question of Victory gardens and you open it up to a question of deciding whether or not you can be assured that people who are going to use the facility will actually produce the products which they are going to put into the locker.

Senator Bushfield. I assume the reason for drawing that line is because of the limited supply of material, isn't it ?

Mr. Warrington. That's right.

Senator Aiken. And towns of 25,000 or more are more likely to have facilities for the preservation of food, cold storage plants already available?

Mr. Warrington. Yes; that is right. In a pinch, in a very critical situation, you might get in those communities the use of existing facilities. And another point which was used as a foundation for that general principle was that those larger cities, generally speaking, have very good rail facilities, are large enough to justify frequent in-hauls of food supplies from the commercial markets, processed-food markets, and that they would be less likely to be cut off in case of transportation difficulties. I will admit that when we drew this up we were told that transportation was going to be one of our worst bottlenecks.

Senator Bushfield. To what extent, Mr. Warrington, have these dehydrated food programs, or compressed food —whatever you call it—that they are now using in connection with the military forces, been spread out for the civilian population?

Mr. Warrington. Generally speaking —I am not too familiar with that, but the impression I get from discussing this, with the people who are concerned with it, is that it is their feeling that dehydrated and dried-food products would not be produced in a quantity sufficient to justify a great distribution to the civilian trade; that most of it will be used for the armed forces and the military. That is true in dried milk and dried eggs and dried vegetables, potatoes, and so forth. For that reason, while we see some dried fruits on the market now, generally speaking, dehydrated foods are not generally available in stores.

Senator Bushfield. I saw several packages prepared by some New York firm the other day that were being used by the military forces. I remember one of them was a package about 10 inches long, maybe, and 2 inches thick, and they said there was enough meat in that package to supply 100 soldiers.

Mr. Warrington. Well, they are doing quite a lot in that field where there is a need to conserve shipping space and waste.

Senator Aiken. Aren't they having the same problem of processing equipment not being available for dehydrating? I recall that Senator Thomas of Idaho said that is a very great problem.

Senator Bushfield. The reason I asked the question, Senator, was because I wanted to know whether that program was expanded so that it might relieve this locker congestion somewhat.

Senator Aiken. Well, it might prove that the expansion of both would be necessary. I think that is probably true.

Senator Miliken. I don't beieve it is expanding, so far as civiian needs are concerned. I inquired into several dehydrating projects in Colorado and in each case the insuperable objection, when there was one, was the lack of critical materials, because the particular project required too much critical materials. The end result of which is that whenever they are authorized, dehydrating plants, with possibly some rare exceptions, they give the authority to an existing cannery which already has a considerable part of the basic dehydrating machinery on hand, and therefore a lot of new stuff is not required.

Other Regulations Outlined

Mr. Warrington. There are other critical points in this that I think we might well cover, the most important of which is this: That we have specified that the plant we recommend shall have capacity, a minimum-amount capacity of 3,900 cubic feet. This has been discussed at some length and questioned by a number of people in the trade, by people in the country, and there is a grave question with respect to this one. I will be the first to admit it. We said that they shall have a capacity for not less than 300 lockers. That is approximately correct, though there is some question about that too, about whether 3,900 cubic feet is too much or too little for 300 lockers, the assumption being that that will serve the use normally, we feel, on the basis of our studies, in normal times of something like 225 to 250 families in a pinch, and that given the fixed amount of equipment necessary to operate a facility, we would get a reasonable degree of efficiency there.

This question of the amount of metal per hundred pounds of food stored, brought out in this morning's testimony by Mr. Titus, indicates that we are faced with the problem of determining when a project actually, theoretically at least, would be sufficiently efficient to justify a recommendation for its installation. That particular point, as I say, has been discussed somewhat, and many people feel that it is questionable. In the small town that point has been questioned.

I might say frankly that in drawing these up I tried to get some people to agree that we would recommend or allow for branch locker rooms, such as the one you mentioned, to operate on a smaller basis, to take care of the small, outlying communities. That, however, was thrown out on the basis of lack of efficiency, presumed.

The next point which I think is critical in our requirements is the fact that a minimum of 180 different families must have evidenced their intent to use this facility by putting in escrow the first year's rental, which money can be paid back to them in full if and when—if the project is not approved.

Senator Aiken. Is that 180 families or 180 lockers?

Mr. Warrington. It has been 180 families. And incidentally, Senator Aiken, our fear was that some people might get 15 families to buy 10 lockers apiece, 10 or 15 lockers apiece, and meet our requirements in that way and go ahead with a project which might not be justified in a community by the demand and the need.

In addition to that, this particular requirement enables us to choose, where we get two or three applications from the same community, which of them is probably going to give the greatest amount of service per 100 pounds of metal allocated. We have had that occasion arise. It also enables us to determine whether or not a second plant in an area is justified, and that condition has arisen on occasion. Here is a community with one plant operating. The man does not see fit to and is not expanding. Here is another man with a building, and who wants to expand. The equestion is, Is there a need for it? How are you going to determine it? And this gives us some reasonable basis to determine whether the need justified the allocation of material. Those are the main points in this.

We contend that the rates should be reasonable, and that the rates charged by other operators in the area should be such that they would encourage full and efficient utilization of the facility, and although we have not paid too much attention to that during the past 6 months, it is a point that should be given more consideration, I feel.

As regards the metal requirements, I think I might add to this just one point that I think there might have been some confusion on. In analyzing the metal requirements per 100 pounds of food storage capacity in locker plant, we found that to equip the plant fully, would require approximately 10 to 12 ponds of metal.

Senator Bushfield. Per locker, per hundred pounds?

Mr. Warrington. Per hundred pounds of storage capacity.

Senator Aiken. Ten to twelve pounds of metal?

Mr. Warrington. Yes; now you add to that—necessarily you must add to that the equipment necessary to do the chilling.

Where Materials Do Most Good

Senator Aiken. Equipment would probably be necessary for the processing by other methods as well?

Mr. Warrington. Yes; that is right. When you talk about preservation as such in a plant, you compare it with preservation by—and you have got just a locker room to consider actually in that analysis.

Senator Aiken. Would you say that the amount of material required for equipment for processing would be approximately the same by the cold-storage method as it would by canning?

Mr. Warrington. I would think that it would be in the neighborhood of the same thing.

Now, here is one of the things. You talk about storage capacity today. You fill a room up with 12½ pounds of metal. Now, to the extent which that plant, those facilities, are used—to the extent, rather, that the product is replaced throughout the year, you get increased efficiency. In other words, if you could, in a vegetable program, replace the product twice a year, in the spring and fall, you would get not 12½ in that room but half that amount.

Senator Aiken. Six and one-fourth.

Mr. Warrington. Yes; and it is this sort of thing which you have got to keep in mind when you start analyzing or comparing metal requirements, and in most plants from a practical standpoint I think they do use the same locker for storing vegetables in the spring and using them in winter, and poultry or fish, and as the product flows out they refill, and you get, therefore, some increased efficiency in the utilization of the metal.

(Continued on Page 20, Column 1)

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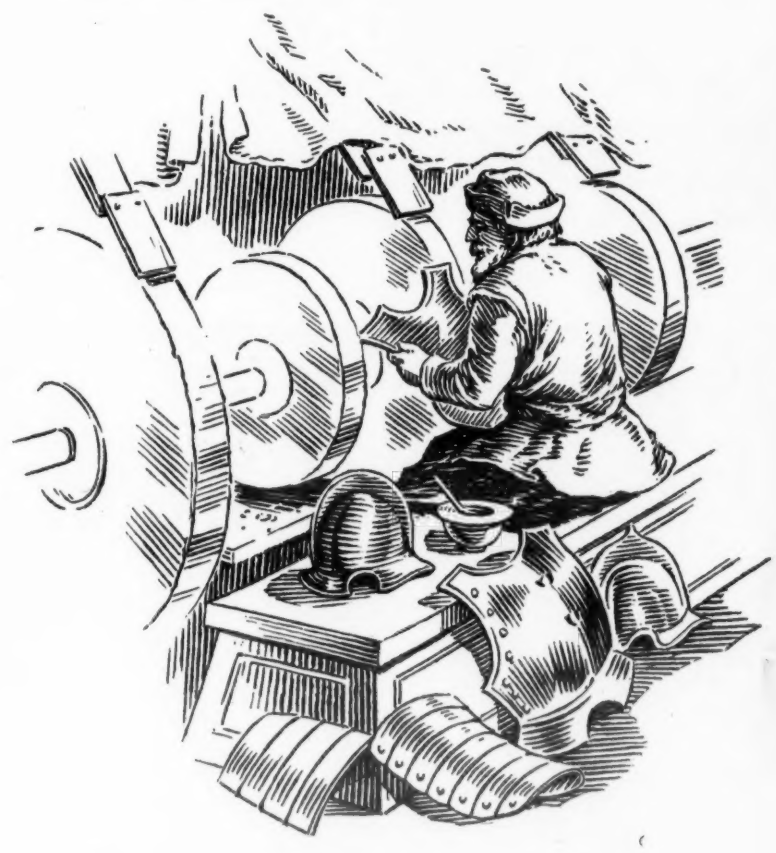

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War Food Administration Official Indicates Materials For Plants Can Be Had

(Concluded from Page 19, Column 5)

Senator Aiken. If it is used twice a year, as you say, that means 6 to 7 pounds of metal per 100 pounds of food.

Mr. Warrington. Right.

Senator Aiken. For 1 year. And then it can be used over and over in succeeding years.

Mr. Warrington. That is true.

Senator Bushfield. Mr. Warrington, have you made any comparisons of the amount of metal used in a locker plant for 100 pounds of food, with the amount of critical material used in the old-fashioned canning in Mason jars and such things as that, put up by the housewife?

Mr. Warrington. No. I have not made that comparison.

Senator Aiken. Have you made any comparison as to the amount of metal necessary to preserve 100 pounds of food in tin cans?

Mr. Warrington. The information I get from the people who are canning, in the Department of Agriculture on that score is that, generally speaking, a No. 2 can, holding from 12 to 13 ounces, using that as a basis for your figuring you have approximately 25 pounds of metal to 100 pounds of product stored.

Senator Bushfield. It would be more than twice as much then.

Senator Aiken. Assuming that the locker was used only once a year.

Senator Bushfield. Yes.

Senator Aiken. Then, of course, the locker is there available for the next year and the year after; whereas, the tin can is thrown away, except that it can be salvaged to a certain extent.

Mr. Warrington. Yes; of course, you must remember that to equip a project with the necessary chilling room and sharp room and equipment, you have, in addition to that, metal about equivalent to the amount in the locker room. I would just as soon leave with you a copy of these requirements sheets which we have had mimeographed and have been distrubted during the past 6 or 8 months.

Official Requirements Listed

REQUIREMENTS FOR THE EXPANSION OR CONSTRUCTION OF LOCKER PLANTS

"1. The proposed plant shall be in a community where the products to be processed and stored are produced in sufficient quantity that the necessary material and manpower may be utilized efficiently. It must also be satisfactorily demonstrated that there is an acute need for such plant.

"2. There shall be no other existing plants or facilities in the community that can satisfactorily perform the services herewith contemplated.

"3. The proposed construction shall be such that it will have space, equipment, and general facilities for processing locally produced foods in a satisfactory and sanitary manner. The plant shall also have not less than six-tenths of 1 square foot of chilling and aging room space for each locker of capacity.

"4. The plant shall have sufficient coil and compressor capacity to maintain the desired temperatures as well as chill and freeze and probable produce load. The insulation and coil capacity in the locker room shall be such that desired room temperatures may be maintained with not more than a 15° difference between refrigerant and room temperature.

"5. The investment in the plant and equipment shall be well balanced and reasonable.

"6. The amount of funds invested by the owner or local people shall be such that the project is financially sound.

"7. The rates to be charged for processing and storage shall be such that they will encourage full and efficient utilization of the facilities by patrons but still be adequate to cover costs of operation plus a reasonable profit.

"8. There shall be a sufficient number of farm and town families who logically use the trading center for regular shopping to utilize the type and size of plant contemplated, and the plant shall be so located that it will be reasonably convenient for the prospective patrons.

"9. If it is not an expansion of an existing plant, it shall have not less than 3,900 cubic feet gross in the low-temperature storage room exclusive of the sharp freezer cabinet or room and /or sufficient capacity for 300 lockers of the usual size.

"As evidence of the community's need for these facilities, the applicant shall have collected and held in escrow 1 year's locker advance rental which in no event shall be less than $8 from each of 180 different families.

"For each 30 cubic feet gross of proposed low-temperature space in excess of 3,900 cubic feet, the applicant shall have one additional family that has paid in 1 year's storage rental but not less than $8.

"10. If it is an expansion of an existing plant with present capacity for not less than 300 lockers, or 3,900 cubic feet, the applicant shall have placed in escrow 1 year's locker rental collected from one new patron for each 30 cubic feet (gross) of contemplated expansion in low-temperature storage space in excess of 3,900. In no event shall the amount collected for anual rental be less than $8.

"Those plants with less than 300-locker capacity, or 3,900 cubic feet, shall have at least 60 percent of the proposed expansion up to a total of 300 lockers rented and paid for in advance.

"Those families that are renting lockers in the proposed expansion shall not be those renting space in the existing low-temperature storage room except that where the number of families exceeds 80 percent of the number of lockers the existing locker room will hold the number in excess of 80 percent (up to 20 percent of the locker room capacity) may be credited to the number of families required to have rented and paid for lockers in the proposed expansion. (See examples.)

"11. The application must be signed personally by the owner of the proposed construction.

"12. The application, together with the completed supplemental information form in triplicate, shall be filed with the county United States Department of Agriculture war board, which board shall verify the acts stated on the supplemental information form and attach a letter of verification to that form. One copy of the supplemental information form shall be retained by the county United States Department of Agriculture war board.

Examples of Rental Requirements

"1. If an applicant has a plant with present capacity of 300 lockers (or 3.900 cubic feet) serving 240 families and he wishes to expand the locker room from a capacity of 300 to 500 (or from 3.900 to 6.400 cubic feet), he shall have rented in advance 83 different lockers to 83 new families.

"2. If this applicant has 260 families using lockers, he shall be credited with 20 families and will, therefore, be required to have only 63 new families who have rented lockers.

"3. If an applicant has a plant with the existing capacity for 200 lockers rented to 160 families and he wishes to expand the capacity by 100 lockers, he shall have advance rentals from 60 families. If, however, this applicant has 180 families using 200 lockers, he shall have 40 families who have paid in 1 year's rental.

WFA Materials 'Bank' Covers Many Programs

STATEMENT OF FRED B. NORTHROP, MATERIAL CONTROL OFFICE, WAR FOOD ADMINISTRATION

Mr. Northrop. My name is Fred B. Northrop. I am material control officer for the War Food Administration.

Senator Aiken. I don't know whether you were here a few minutes ago when we were asking Mr. Warrington about the request which was made of the Food Requirements Committee for material to provide quick freezing facilities. Do you know of such a request, one that was made in August and another in December?

Mr. Northrop. I am not aware of those two requests, if they were made. Under the controlled-material plan of the War Production Board under which they are now operating, and under which the Department obtained an allotment of controlled materials —by that I mean steel, copper, and aluminum—requests for materials in the second calendar quarter of this year should have been made in December. The estimates of requirements by the Department, however, in the broad category of food processing and storage were prepared at that time within the existing Food Division of the War Production Board, which later was transferred to the Department.

There was quite an area of confusion with respect to the jurisdiction of the Department and of the claimant agency, and I suspect that as such a direct estimate for the particular purpose of frozen food locations was not submitted by the Department officially to the claimant agency. For the third calender quarter of this year we did submit an over-all request for controlled materials, steel and copper, largely, for a broad program of construction facilities in some 58 program fields. Going to make up that estimate were some figures put in for the broad category of public cold storage, the estimate being in terms of—well, I guess I can describe it best as what might be expected to arise in the Department in the way of an application for these materials.

Locker Plants Were Missing

Senator Aiken. Do you include the so-called locker plant in the category of public cold storage?

Mr. Northrop. We just received this week program determination of the War Production Board dated May 3, in which the Department, or now the War Food Administration, was made a direct allocation of steel, copper, and aluminum for what they call in the War Production Board "Construction and facilities," and it would be out of this over-all allocation that applicants who were to build frozen food local plant or expanded facilities would obtain their materials.

Senator Aiken. What is the amount of that?

Mr. Northrop. The total amount is 25,000 tons of carbon steel, 200 tons of alloy steel, and miscellaneous small amounts of various copper products, copper, and aluminum products.

Senator Aiken. And that is for use in the third quarter?

Mr. Northrop. That is for use in the third quarter of this calendar year.

Senator Bankhead. Mr. Chairman, I have not had the privilege of attending these hearings before, but it is my understanding that you are investigating now the procedure for getting materials and supplies for quick-freezing plants?

Senator Aiken. Yes; the subcommittee held hearings yesterday and this morning to consider this whole quick-freezing problem.

Senator Bankhead. I assume from your statements that everybody connected with the production of food and the preservation of food understands the need of these plants, and that it appears the difficulty is in the War Production Board.

Senator Aiken. We have the representatives of the agencies here. Perhaps Mr. Warrington could tell us at this time if the Department of Agriculture has approved many applications.

Mr. Warrington. Yes; we have approved applications as they come in and meet the specified requirements.

Senator Bankhead. How many have you approved?

(Continued on Page 21, Column 2)

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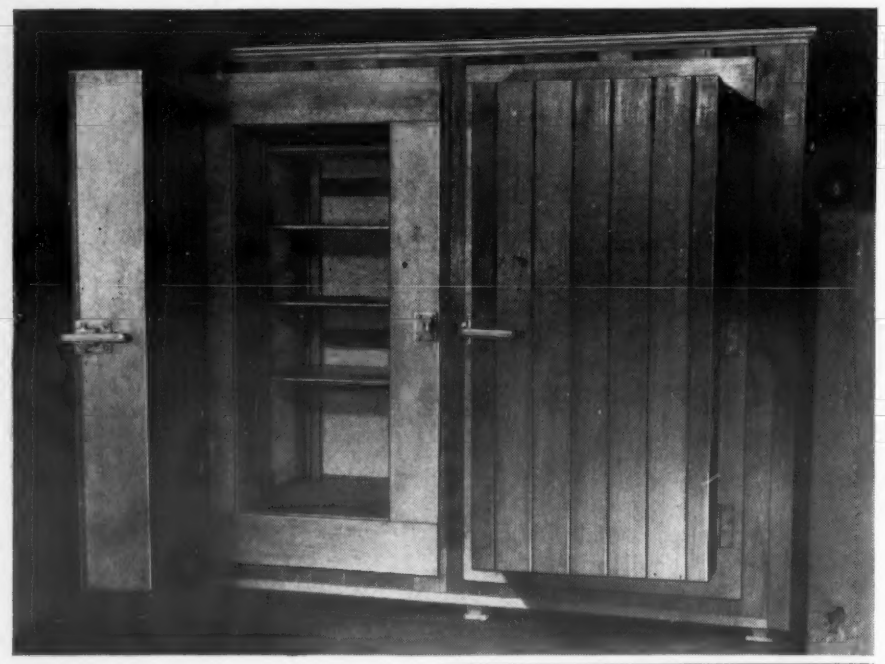

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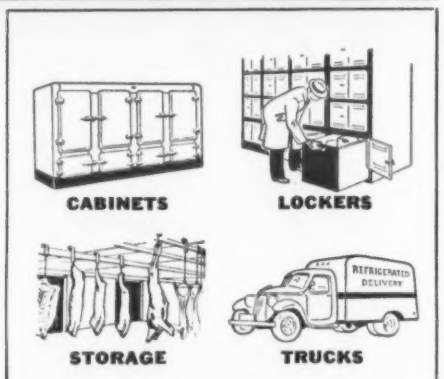

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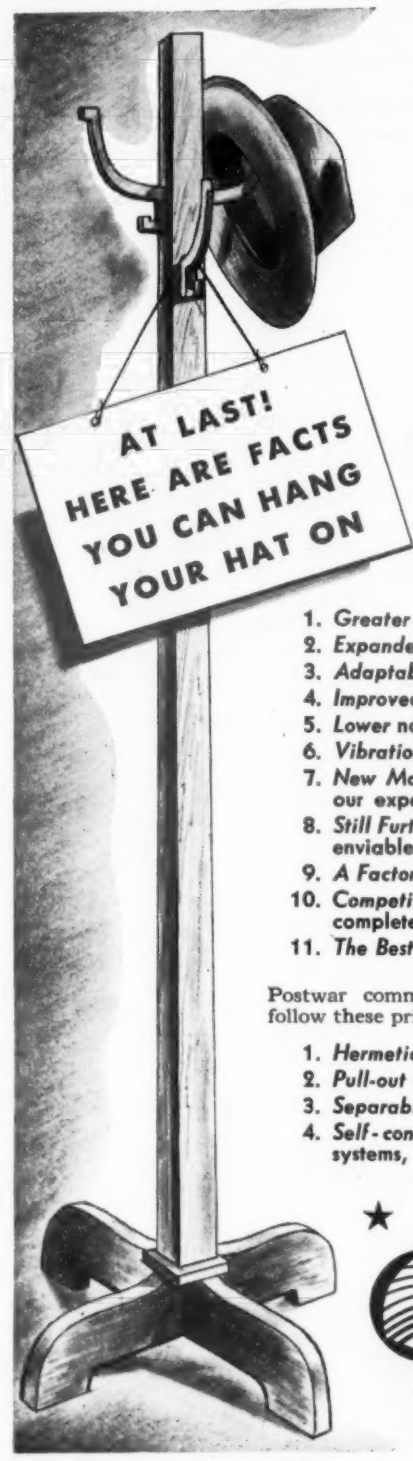

"Postwar planning" is the order of the day. Our mail attests the fact that the former manufacturers in various branches of the refrigeration industry, are putting their plans on paper, at least, and some of them are considering new models of postwar products.

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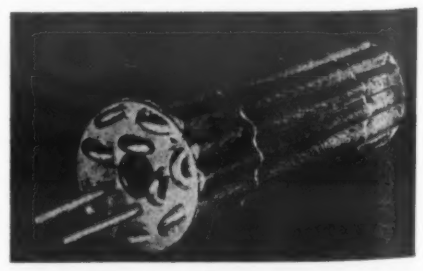

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Quick-Freezing Equipment Neglected In WFA Early Material Estimates

(Concluded from Page 20, Column 5)

Mr. Warrington. We have approved about 65 applications, to my knowledge.

Senator Bankhead. How many have been granted by the War Production Board of that 65?

Mr. Warrington. Well, we haven't the exact information on that. We have samples of that—or I tried to get a report on the action taken, and in about half of the 30 cases—there are about 25 or 30 of those cases, and if I recall correctly, there were about half of them that have been granted.

Senator Bankhead. Won't the War Production Board give your department information on what applications they have granted, that have been approved by the Department of Agriculture? Do they hold back on that?

Mr. Warrington. No.

Senator Bankhead. Why don't you ask them and find out, then?

'Red Tape' Difficulties

Mr. Warrington. The difficulty is that several—we have some forms running through to the New York construction branch, some going in here, and the final action oftentimes is held up pending additional information for their purposes, and we have no exact information on what has been done.

Senator Bankhead. Meanwhile you are driving right up to the season when you have got to preserve vegetables, or conserve them, freeze them, or let them rot.

Senator Aiken. Senator Bankhead, I might say that although only 65 have been approved by the Department of Agriculture—and I don't know how many applications they have had—the majority of the communities who desire to put in these plants do not put in their applications until they feel that there is a reasonable chance of getting them granted, since they are required to have a large percentage—180 families are required to put cash down before they can get their applications considered, tying up possibly as much as $5,000 for the community.

They don't feel that they want to tie up $5,000 over a period of maybe 2 or 3 years, unless there is a reasonably good chance of getting the application granted. If they felt there was, there would probably be two or three thousand applications put in within a period of weeks. That is just an estimate on my part, but I think it is reasonably correct, that there are two or three thousand communities in the United States that are begging for these quick-freezing facilities; but, as I understand it, practically none at all have been granted for a long time, and what we hope to find out is why, and work out some plan whereby these facilities can be provided for the communities.

Mr. Macomber (assistant committee clerk). Mr. Northrop, in connection with this allocation that you have received from the War Production Board for the third quarter, has any tentative allocation, any suballocation, been made to quick-freezing equipment, or was any made in connection with the request that was sent in? Was it filled up with a specific amount of equipment?

Mr. Northrop. No; it was not; but my judgment is that that should be done, and we are asking the various operating branches that sponsor these programs to finish up the requirements for them, so we can budget to each program.

Mr. Macomber. Is there a substantial amount that can be available during the third quarter for quick freezing to meet this demand?

Materials Are Available

Mr. Northrop. I would want to define the word "substantial," but I suspect we could probably furnish enough to meet the demand.

Mr. Warrington. Mr. Northrop, if the vast majority of these products are steel products, that woudn't come out of your general bank, would it?

Mr. Northrop. No; it does not.

Mr. Warrington. Therefore, as I recall, actually the only thing that you use in these plants which we would term "controlled materials" are nails. The vast majority of them are fabricated equipment items which do not come out of the controlled materials branch. Is that right?

Mr. Northrop. That is substantially correct. The fabrication of those items are obtained from the allotment to be made to the various divisions. However, under arrangements now for this third quarter, if one of those divisions hasn't sufficient material and we happen to have any cushion in ours, we have the authority to make a transfer.

Mr. Macomber. Mr. Northrop, are the allocations for the fourth quarter being built up at the present time?

Mr. Northrop. Actual fourth quarter presentations have not been made and will not be until along about the first of July. However, with this authorization for the third quarter we also received authority to make full advance, 100 percent authorizations for the fourth quarter of this year, and the first two quarters of 1944.

Mr. Macomber. That would indicate you could continue for three more quarters?

Mr. Northrop. Yes; we can go right ahead.

Most For Canning

Senator Aiken. This 250 tons of carbon steel and the small amount of copper is allocated for refrigeration?

Mr. Northrop. No, sir.

Senator Aiken. That is for cold storage purposes only?

Mr. Northrop. No, sir; I should explain that that will have to cover some 58 different programs.

Senator Aiken. Does that include canning?

Mr. Northrop. Not tin cans; no, sir.

Senator Aiken. That is a separate allocation?

Mr. Northrop. That is a separate allocation, and happened to have been in the amount of 565,000 tons of metal for the third quarter.

Senator Aiken. For tin cans for the third quarter?

Mr. Northrop. That's right.

Senator Aiken. How does that compare with the normal amount used in that same period?

Mr. Northrop. The Department estimates on that are that the amount that will be put in tin cans in the year 1943 will be substantially as large as 1942. We are hoping for a larger amount.

Mr. Macomber. Does the equipment for canning factories come within your allocation, your program?

Mr. Northrop. Not equipment as such.

Mr. Macomber. What about pressure cookers for home use? Are they included in your program?

Mr. Northrop. Well, we were able to get that pressure-cooker program fixed with the War Production Board in pretty good shape, and out of our second quarter allocation we made a small transfer out of our over-all allotments to the War Production Board Division to get that production stepped up, and I understand that it is being produced at about the maximum manufacturing capacity right now.

Senator Aiken. Mr. Northrop, do you think it would be a good plan to set up certain allotments for quick-freezing equipment and losses?

Mr. Northrop. I think it would be an excellent idea. I would help our office because we know how much we had to give up to steel.

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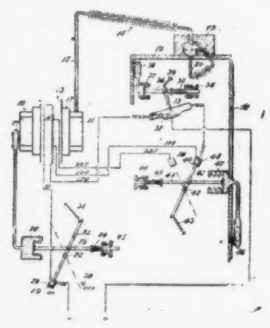
PATENTS

Weeks of July 13 & 20

2,323,901. CONTROL SYSTEM FOR REFRIGERATING APPARATUS. Nils Erland af Kleen, Stockholm, Sweden. Application Feb. 24, 1941. Serial No. 380,330. 24 Claims. (Cl. 62—5).



3. In absorption refrigerating apparatus operating to cool an enclosed space and the like and including refrigerant generating means adapted to be heated; the combination with heating means for said generating means; of means responsive to the temperature in the space being cooled for regulating the heat between a fixed value and a variable value, and separate means responsive to the temperature outside the space being cooled determining the value of said variant.

2,323,902. ABSORPTION OR ADSORPTION REFRIGERATING APPARATUS. Nils Erland af Kleen, Stockholm, Sweden. Original application July 16, 1937. Serial No. 154,090. Divided and this application April 16, 1941. Serial No. 388,763. In Great Britain July 23, 1936. 2 Claims. (Cl.62—118).

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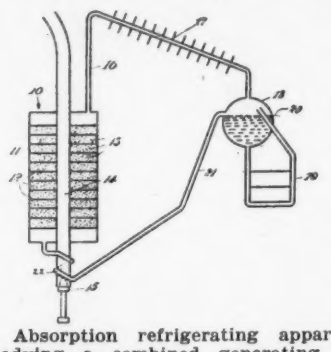
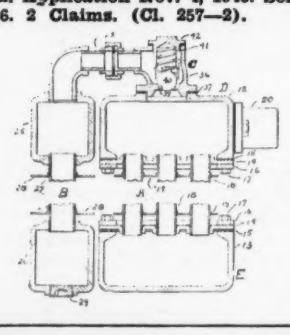


1. Absorption refrigerating apparatus embodying a combined generating and absorbing element containing dry salts, a condensing element, an evaporating element, and conduit means connecting said elements together to form a closed system for the circulation of a refrigerant, means for supplying a predetermined amount of heat to said combined generating and absorbing element for the generation of refrigerant vapors, the quantity of refrigerant generated by said predetermined amount of heat being less than the total quantity of refrigerant initially charged to the system and absorbed by the dry salts, and a conduit connected to said evaporating element for the overflow of surplus liquid refrigerant delivered to said evaporating element by an excess supply of heat to said combined generating and absorbing element, said conduit extending downwardly from said evaporating element and being connected to the bottom of said combined generating and absorbing element and said combined generating and length intermediate said evaporating element and said combined generating and absorbing element disposed between said heat supplying means and said combined generating and absorbing element and arranger in direct heat transfer relation with said heat supplying means, whereby the surplus liquid refrigerant is vaporized and the excess supply of heat is dissipated to prevent overheating of said combined generating and absorbing element.

2,323,994. OIL COOLER. John J. Hilt, Racine, Wis., assignor to Young Radiator Co., Racine, Wis., a corporation of Wisconsin. Application Nov. 4, 1940. Serial No. 364,236. 2 Claims. (Cl. 257—2).



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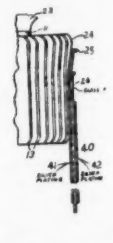
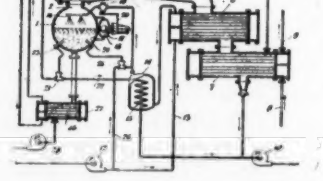
1. A device of the class described, comprising two separate heat exchangers each comprising spaced headers and finned tubes forming operating connections therebetween, two faces of said heat exchangers being in juxtaposition whereby a single direct air passageway between the fins and tubes of each exchanger are provided, one of said heat exchangers adapted to offer low resistance to the passage of viscous oil through the tubes thereof and the other heat exchanger adapted to offer high resistance to the passage of viscous oil through the tubes thereof, said low resistance exchanger being positioned in front of the high resistance exchanger whereby cooling air may pass between the tubes and fins of the other exchanger, inlet and outlet connections in the headers of said high resistance exchanger, operating connections between adjacent headers, a bypass valve in one of said operating connections having means whereby when the oil is too viscous to pass through the tubes of said high resistance exchanger, it will be permitted to pass through the tubes of said low resistance exchanger and whereby when the oil will pass freely through the tubes of said high resistance exchanger, said valve will be closed.

2,324,034. AIR-COOLED POWER AMPLIFIER. Andrew A. Skene, Glen Ridge, N. J., assignor to Bell Telephone Laboratories, Inc., New York, N. Y., a corporation of New York. Application April 23, 1942. Serial No. 440,161. 7 Claims. (Cl. 250—27.5).



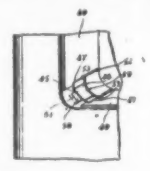
1. In combination, a thermionic tube comprising an anode having a cooling fin assembly in which heat is generated external to the envelope of the tube, a condenser for connecting the anode to ground for alternating currents, said condenser being constituted by a cylinder of dielectric material having an electrically conductive covering on its outer surface and another electrically conductive covering on its inner surface, connecting means for connecting one covering of said cylinder to the anode and the other covering to ground, holding means for holding at least a portion of the anode cooling fin assembly within the confinies of said cylinder, generating means for generating a flow of air from an outlet, and joining means for causing the cylindrical condenser to serve as a duct for guiding the flow of air to the anode fin assembly for dissipating the heat generated in said assembly.

2,324,193. AIR CONDITIONING. Richard Brunel, Somerville, N. J. Application June 21, 1940, Serial No. 341,645. 2 Claims. (Cl. 261—3).



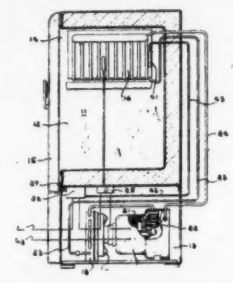
1. In air-conditioning apparatus in combination means for exposing air of atmospheric temperature and relative humidity to the drying and cooling effects of a hygroscopic chemical solution, a chamber, means comprising a steam condenser for creating a sub-atmospheric pressure in said chamber, means for further heating the used solution comprising means for exchanging heat between the condensing steam and the used solution, means for exposing the used solution to the evaporating effect of said sub-atmospheric pressure, means for chilling the concentrated solution and means for returning the solution concentrated by said evaporation to the first mentioned means.

2,324,245. REFRIGERATOR SPACER CONSTRUCTION. Enoch Swedman, St. Paul, Minn., assignor to Seegar Refrigerator Co., St. Paul, Minn., a corporation of Minnesota. Application Nov. 20, 1940. Serial No. 366,393. 6 Claims. (Cl. 220—15).



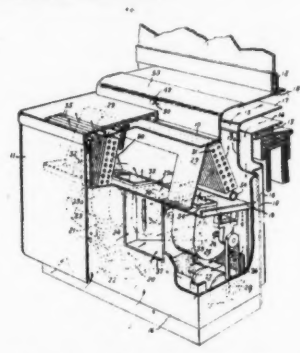
2. A refrigerator construction comprising an outer metallic covering having a substantially rectangular door opening therein, an inner liner having a similar opening therein, a corner connecting spacer comprising a pair of spacing strips and an intermedate connecting strip, one end of each of said spacing strips being secured to said outer covering member along two adjacent edges of said rectangular opening to said outer covering, insulation means interposer between the other ends of said connecting strips and said liner, securing means securing said other ends to said liner, breaker strips overlying the edges of said inner liner and said outer covering, and clamping means overlying the ends of said breaker strip and secured to said connecting strip, and trough-shaped trim means overlying said clamping means, and inturned substantially parallel edges on said trim means slidably engaging the opposed edges of said clamping means.

2,324,309. REFRIGERATION APPARATUS. Graham S. McCloy, Springfield, Mass., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Aug. 6, 1942, Serial No. 453,763. 5 Claims. (Cl. 62—4).



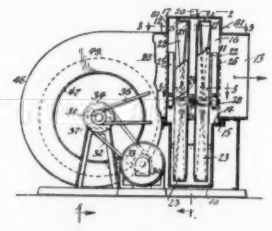
1. In refrigeration apparatus, the combination of a refrigerator cabinet having a food-storage compartment provided with an access opening therein, a door movable for opening and closing the access opening, a cooling element for refrigerating the air in said food-storage compartment, refrigerating apparatus for normally maintaining said cooling element at an average temperature below the freezing point of water, at which temperature it collects frost from the moisture in said air and means responsive to the opening and closing of said door a predetermined plurality of times to modify the operation of said refrigerating apparatus to permit the temperature of said cooling element to rise above the freezing point of water.

2,324,313. AIR CONDITIONING APPARATUS. Robert H. Meyerhans, West Caldwell, N. J., assignor to General Electric Co., a corporation of New York. Application Aug. 14, 1940, Serial No. 352,535. 9 Claims. (Cl. 62—129).



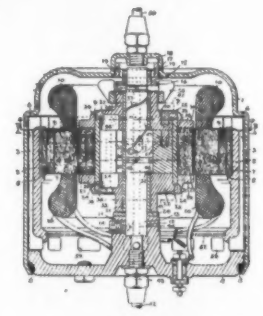
1. An apparatus for conditioning the air within a room comprising a casing having two inlets one for fresh air and the other for room air and two outlets one for discharging air to the outside, said casing having a chamber therein provided with two air inlets and two air outlets, means for connecting said inlets and said outlets of said chamber respectively with said inlets and said outlets of said casing, means for producing a circulation of air from said inlets of said casing through said chamber to said outlets of said casing, and damper means arranged in said chamber for selectively connecting said inlets thereof to said outlets thereof to vary from substantially all fresh air to substantially all recirculated air, the proportions of fresh and recirculated air discharged into the room through said one outlet of said casing.

2,324,386. AIR CLEANER AND HUMIDIFIER. Eugene Gusy, Buffalo, N. Y. Application Feb. 3, 1941, Serial No. 377,125. 4 Claims. (Cl. 261—92).



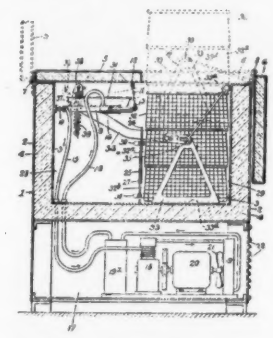
1. An air cleaner and humidifier, comprising a tank adapted to contain a liquid, a conduit which extends above the tank and through which air is propelled, and two rotary wheels arranged side by side and having their lower parts dipping into the liquid in said tank and their upper parts projecting into the path of the air in said conduit, and each of said wheels having blades and a peripheral driving rim, a rotatable driving wheel, and means for moving said driving wheel into and out of engagement with said driving rims.

2,324,434. REFRIGERANT COMPRESSOR. William H. Shore, West New Brighton, Staten Island, N. Y. Application Mar. 29, 1940, Serial No. 326,704. 15 Claims. (Cl. 230—139).



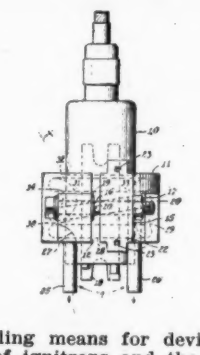
1. A refrigerant compressor comprising, a sealed casing enclosing an electrical stator and a shaft fixed from rotation in said casing, an electric motor rotor including a compressor cylinder rotatably mounted on said shaft and surrounded by said stator, a cylindrical rotary piston eccentrically mounted within said cylinder and having sealing contact therewith at one side thereof, a member having journal portions at each end thereof journalled in said cylinder at both ends thereof for oscillation about an axis permanently disposed within the periphery of said rotary piston and having blade portion intermediate said journal portions extending inwardly from the inner periphery of the cylinder and operatively engaging said eccentric piston to rotate same in unison with said cylinder, and said journal portions projecting beyond the piston to form a seal the cross sectional area of each of the journal portions of said member being substantially greater than the cross sectional area of said blade portion, means for directing the inflow of refrigerant to the cylinder at one side of said member, and means for controlling the outflow of the compressed refrigerant from said cylinder on the opposite side of said member.

2,324,527. REFRIGERATING APPARATUS. Willard L. Morrison, Lake Forest, Ill. Application Aug. 14, 1939, Serial No. 289,940. 6 Claims. (Cl. 62—89).



1. A refrigerating apparatus comprising a refrigerating receptacle closed at the bottom, ends and sides, a cooling element in said refrigerating receptacle, located near the top thereof and extending part way across said receptacle, and a partition which divides the receptacle into two chambers of unequal temperatures, said partition extending from the bottom of the receptacle upwardly, with its upper edge below the cooling element, the air around the cooling element being cooled thereby and dropping by gravity into the chamber below the cooling element and causing the warmer air to rise and pass over the top of the partition into the other chamber, so that two connected chambers are provided, cooled to different temperatures by the came cooling element.

2,324,533. COOLING MEANS. Robert W. Pearson and John Bender, Wilkinsburg, Pa., assignors to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Sept. 26, 1941, Serial No. 412,467. 7 Claims. (Cl. 250—27.5).



1. A cooling means for devices of the character of ignitrons and the like, comprising a split housing having a cylindrical device-engirdling interior surface for circumferential surface engagement with said device, said housing adapted to be spread and contracted, means for contracting and clamping said housing tightly in place on said device with juxtaposed surfaces intimately engaged, and a cooling-medium flow-passage coil embedded in said housing, said coil spreading and contracting with said housing.

2,324,620. AIR CONDITIONING APPARATUS. Arthur H. Eberhart, Springfield, Mass., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Mar. 2, 1940, Serial No. 321,875. 10 Claims. (Cl. 62—129).

(Concluded on Page 23, Column 2)

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REMOTE ICE cream cabinets. Round holes, brine. All in good condition, all are complete. No units. Six dollars a hole. Two 3-hole cabinets; eight 4-hole cabinets; six 6-hole cabinets; 26 8-hole cabinets; one 10-hole cabinet; one dual temp. 8-hole cabinet. GENERAL REFRIGERATORS CORP., 678 Broadway, New York, N. Y.

COMPLETE ⅓ H.P. Highside, less motor $15.00; Carbon Tetrachloride, 5 gallon, $7.00, container 50¢; ⅓ H.P. Finned Condensers $6.00; Frigidaire ⅓-½ H.P. Compressors $7.00; 4 tray Expansion Type Evaporators $10.00. All parts "as is"—running condition, F.O.B. EDISON COOLING, 310 E. 149th, New York.

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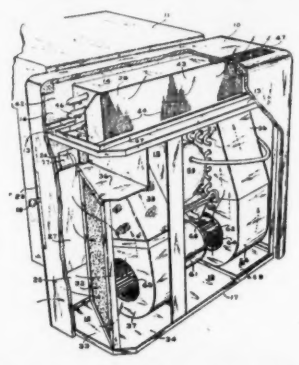
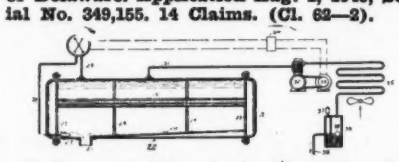


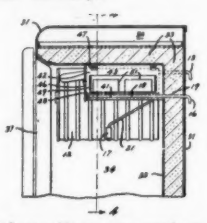
1. In air conditioning apparatus, the combination of a cabinet, an evaporative cooling unit and a condenser therein, a duct having a portion extending exteriorly of said cabinet, said duct circulating air from exterior of said cabinet over said condenser, other devices associated with said air conditioning apparatus, said other devices comprising a compressor for withdrawing vaporized refrigerant from said evaporative cooling unit and passing said vapor to the condenser, and a motor for driving said compressor, some of said devices being located in the portion of the duct extending exteriorly of said cabinet.

2,324,627. REFRIGERATION. Walter Jones, Princeton, N. J., assignor to Carrier, Inc., Syracuse, N. Y., a corporation of Delaware. Application Aug. 1, 1940, Serial No. 349,155. 14 Claims. (Cl. 62—2).



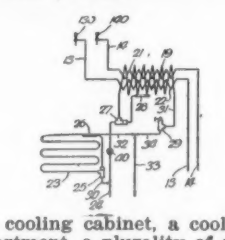
6. In a system of the character described a condenser, a thermal bulb within the condenser, means operative in response to the change in temperature of said thermal bulb for indicating a pressure corresponding to the condensing temperature of a refrigerant in the condenser, means for measuring the total pressure in the condenser, and means for evacuating non-condensible gases from the condenser when the difference in said pressures exceeds a predetermined number of pressure units.

2,324,649. REFRIGERATING APPARATUS. Nelson J. Smith, Dayton, Ohio, assignor to General Motors, Inc., Dayton, Ohio, a corporation of Delaware. Application Jan. 24, 1941, Serial No. 375,825. 10 Claims. (Cl. 62—89).



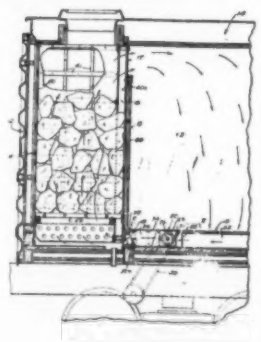
1. A refrigerating apparatus comprising in combination, a cabinet having a food storage chamber therein, a closed refrigerating system associated with said cabinet and containing a volatile refrigerant, said closed system including a refrigerant compressing and liquefying unit operatively connected with an evaporator disposed in said cabinet and adapted to cool air within said chamber, means within said chamber and forming a support for a receptacle therein, an element adapted to apply heat to said receptacle support, and said refrigerating system being arranged to utilize the sensible heat of liquid refrigerant flowing from said unit toward said evaporator for applying heat to said heating element.

2,324,707. COOLING APPARATUS. Herman K. Johnson, Grand Haven, Mich. Application June 30, 1941, Serial No. 400,455. 7 Claims. (Cl. 62—141).



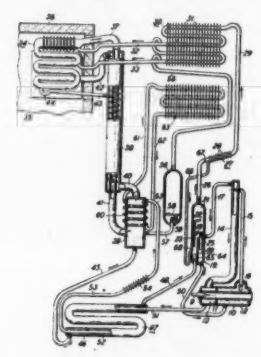
1. In a cooling cabinet, a cooling syrup jar compartment, a plurality of syrup jars extending into said compartment, a plurality of draft members mounted on said cabinet above said compartment, a plurality of conduits connected one to each of said draft members, said conduits having their intermedate portions helically wound in multiple to form together a single closely wound elongated cooling member in the form of an open cylinder open at both ends with the turns in side by side relation with each convolution interposed between and in heat exchange relation with two other convolutions substantially throughout the length of said member, exposed directly to the air within said compartment for cooling the interior of the latter for reducing the temperature of the contents of said jars.

2,324,749. REFRIGERATOR SYSTEM FOR CARS AND THE LIKE. Herbert J. Wieden, Los Angeles, Calif., assignor to Pacific Railway Equipment Co., Los Angeles, Calif., a corporation of California. Application April 26 ,1941, Serial No. 390,548. 8 Claims. (Cl. 62—24).



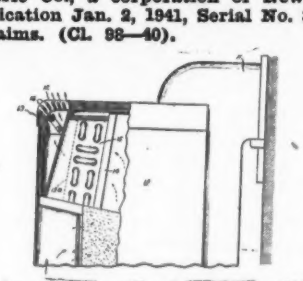
1. In refrigerating systems for a car or the like which has floor, roof and fixed side and end walls, a transverse bulkhead dividing the car interior into a load compartment and an ice bunker at the end of that compartment, air circulation openings between the load compartment and the bunker at the upper and lower ends of the bulkhead, and extending across substantially the full width of the car, and a lading floor spaced over the floor of the load compartment; the improvement which is characterized by the ice receiving bunked being directly delimited and walled by the bulkhead and by the fixed end and side walls of the car, all of said bunker delimiting walls being non-apertured and interiorly surfaced to withstand direct contact with a charge of ice and to be impervious to moisture, the side-defining surfaced walls of the bunker being substantially flush with the inner faces of the car side walls which delimit the load compartment, the interior space of the ice bunker which is delimited and bounded by its said surfaced walls being wholly open and unobstructed to receive an ice charge completely filling its horizontal cross-section, all so that there are no air flue spaces through which air may flow vertically around the ice charge, the external car walls which enclose the bunker being heat insulated to that degree which will prevent any substantial meltage of the ice charge adjacent and against those walls due to heat conduction therethrough, there being means for impelling an air current in a single closed flow circuit through the upper and lower circulation openings, the ice bunker and the load compartment, said means including an air impeller unit located in the space between the levels of the lading rack and the floor and acting to propel an air flow, of substantially the full car width, longitudinally of said space, and means at the level of the lading rack confining the air flow below that level between the impeller unit and the lower circulation opening at the bulkhead, there being an ice supporting grate in said delimited ice bunker permanently located at the substantial level of the lading rack and substantially filling the horizontal cross-section of said bunker, and the bulkhead being movable between its position in which it separates the ice bunker from the load compartment and a position in which it is approximately against the end wall of the car, and releasable means for securing the bulkhead in either of its stated positions.

2,324,810. REFRIGERATION. Carl T. Ashby, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application May 16, 1941, Serial No. 393,701. 8 Claims. (Cl. 62—119.5).



2. An absorption refrigeration system including an analyzer, said analyzer having a vapor inlet, a vapor outlet, a liquid inlet, a liquid outlet, a partition between said liquid inlet and liquid outlet dividing the liquid in said analyzer into two bodies having substantially the same surface levels, and means operated by flow of vapor through said analyzer for transferring liquid from one of said bodies to the other over said partition.

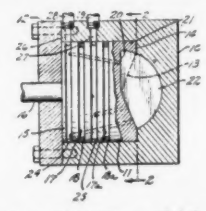
2,324,858. OUTLET GRILLE FOR AIR CONDITIONING APPARATUS. Samuel J. Levine, Verona, N. J., assignor to General Electric Co., a corporation of New York. Application Jan. 2, 1941, Serial No. 372,745. 6 Claims. (Cl. 98—40).



1. An outlet grille for air conditioning apparatus and the like comprising a member providing an outlet opening, a plurality of vanes associated with said opening, said vanes being arranged in two sets, one set for directing air flowing through the opening in one direction and the other set for directing the air in a different direction, and means including a member moveable into either of two positions to shield one of said sets of vanes in one position and the other of said sets in its other position for selectively determining the direction of flow of air discharged through the opening.

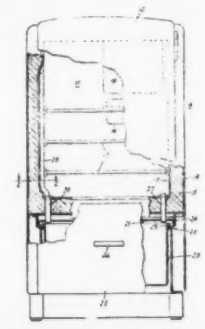
PATENTS ISSUED FEB. 16, 1943 BUT NOT PREVIOUSLY PUBLISHED IN AIR CONDITIONING & REFRIGERATION NEWS

2,311,334. ROTARY PUMP. Donald A. Fulton, Los Angeles, Calif. Application Sept. 18, 1939, Serial No. 295,423. 13 Claims. (Cl. 103—124).



1. A rotary compressor which includes: a housing; a member in said housing having a concave conical end surface whose axis is obliquely positioned with respect to the axis of said member and whose base is a plane circle obliquely positioned with respect to the axis of said member; a cone within said housing and axially aligned with said first member; a movable plate in the form of a minor circular sector making a wiping contact with said end surface and extending diametrically across said cone to form with said cone, said end surfaces, and the walls of said housing, a chamber of variable volume; and means to admit and discharge fluid into said chamber of variable volume, said conical surfaces being rotatable with respect to each other.

2,311,425. DEHYDRATING COMPARTMENT. Albert F. Wild, Scotia, N. Y., assignor to General Electric Co., a corporation of New York. Application June 10, 1942, Serial No. 446,430. 9 Claims. (Cl. 62—89).



1. In a refrigerator having a refrigerated compartment and a cooling element disposed therein, a substantially air tight receptacle associated with said refrigerator cabinet, and means including a plurality of passages communicating between the interior of the compartment and the interior of the receptacle for permitting the passage of water vapor and air from he receptacle to the refrigerated compartment, said passages being sufficiently small in cross section to substantially prevent refrigeration of said receptacle.

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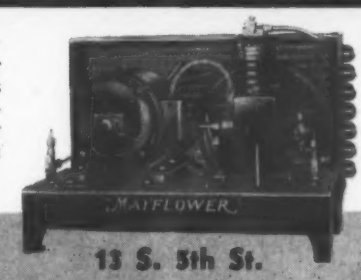

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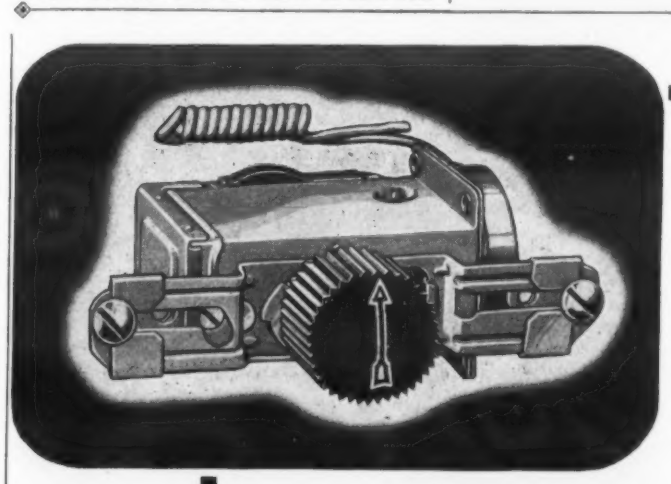
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A limited number of models of Ranco Controls are still being made. They are precision-built, long-lasting and accurate. In these times, food deterioration cannot be tolerated. Ranco controls are protecting vital foods just as other Ranco-built precision instruments protect human lives on the many war fronts.
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'Distributive and Service Trades Must Be Maintained,' OCR Says

(Concluded from Page 1, Column 4)

and production of essential civilian goods could be maintained. Requirements of the war program, he said, are so great that additional materials cannot be spared.

Mr. Whiteside cautioned civilians not to expect bans against the manufacture of many civilian products to be lifted.

"The civilians of this country realize that a continuing drop in the quantities of goods which formerly made up their standard of living must be expected during a total war and that every possible resource must be directed toward military victory. Our objective is to provide the essentials that will permit the civilian population to maintain itself in a sound and vigorous condition in order to produce at maximum efficiency for war," Mr. Whiteside said in his report.

To carry out that program, the OCR has adopted these policies, which have been approved by the Civilian Requirements Policy Committee:

THE 9-POINT PROGRAM

1. "We must insure that all minimum essential civilian requirements are met and in addition that all national resources above that level, which cannot be employed effectively to meet our military and foreign policy needs are utilized to supply civilians. We do not advocate forcing the civilian population down to bare subsistence levels in the present military situation.

2. "Supplies for civilians will be considered to be at the minimum essential level for any product or service when further reduction would impair civilian health, morale or working efficiency or the national economic structure beyond what is justified by the prospective gain to the war through release of resources.

3. "Adequate repair parts, replacement parts and labor must be made available to maintain existing essential equipment in the hands of civilians in operating condition.

4. "The distributive and service trades must be maintained to the extent necessary to make essential goods and services available to civilians when and where needed.

5. "The need of such groups as new families, infants and children, workers with special requirements and rapidly-growing communities will receive particular consideration.

6. "Damage to the basic economic and social structure will be avoided to the extent consistent to the prosecution of the war and the satisfaction of essential civilian requirements. Small business concerns will be utilized to the fullest extent practicable in the production and distribution of civilian goods and services.

7. "Every effort will be made to economize the use of resources and to conserve the goods now in civilian hands.

8. "Every sacrifice that the civilian population is called upon to make will be in furtherance of our war effort and no unnecessary sacrifices will be called for.

9. "Public information will be furnished promptly to enable the civilian population to understand the reasons for government decisions limiting the supply of civilian goods and services."

HOW COMMITTEE OPERATES

"The Civilian Requirements Policy Committee, said Mr. Whiteside, "unifies the agencies which as a whole look after civilian needs and are responsible for the maintenance of a sound and vital civilian population. The Committee correlates the policies of the several Government agencies concerned with the supply of essential goods and services for civilians in order that civilians may make their maximum contribution to the war."

The Committee, of which WPB Chairman Donald M. Nelson is chairman and Mr. Whiteside vice chairman, has as members Secretary of Agriculture Claude R. Wickard, War Manpower Commission Chairman Paul V. McNutt, Price Administrator Prentiss Brown, Petroleum Administrator for War Harold L. Ickes, and Office of Defense Transportation Chairman Joseph B. Eastman. In addition, War Food Administrator Marvin Jones, National Housing Administrator John B. Blanchard, Jr., and Smaller War Plants Corporation Chairman Brigadier General Robert W. Johnson are invited to sit in with the committee.

It is emphasized that this report differs substantially from the "Minimum Civilian Consumer Requirements" report rendered by the Office of Civilian Supply earlier this year. That report was on the minimum levels of supply which could be reached, if necessary, in a long war. This report is one of actual production needs for the next six calendar quarters.

The principal problems facing OCR, according to the report, are:

1. Shortage of manpower, particularly in the service trades.

2. Inadequate distribution of scarce goods.

3. Lack of some materials, particularly metals, for civilian manufacture.

The report states frankly that OCR has not solved the complex problem of distribution to the end that all localities will have a proportionate share of scarce items.

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If you are a good checker player you are due to make a lot of money. So pull up a chair, mate. Get your feet on the stove . . . your eye on the sawdust box . . . and listen.

Business is just a game of checkers. You against competition . . . playing for jobs. You move . . . competition moves . . . you move . . . it's just a game of checkers. Whether or not you win depends upon two things . . . how smart are you? . . . how smart is your competition?

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War has changed the rules of the game . . . IN YOUR FAVOR. War has taken away many of your competitors' men. War has increased the size of the board. More applications . . . more prospects . . . more business than ever before. You know what this means . . . in checkers or in business. More spaces to move in . . . fewer competitors between you and Kings' Row. You ARE due to make a lot of money, if . . . and there's only one "if" . . . you're smart enough not to lose your own game.

Watch the board grow. Watch the competition shrink. Watch who stays on your side . . . and who goes out with competition. Watch . . . watch . . . watch. Watch as long as you like. Watch till you're SURE I'm right. Then ACT!

It will be YOUR MOVE, mate. And remember that in business, as in checkers, the way to Kings' Row is forward . . . not backward.

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P. S. And when you buy War Bonds, remember . . . ; more, not less, is the winning move.

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